



Council of the
European Union

Brussels, 5 October 2023
(OR. en)

13867/23
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COVER NOTE

From:	Secretary-General of the European Commission, signed by Ms Martine DEPREZ, Director
date of receipt:	5 October 2023
To:	Ms Thérèse BLANCHET, Secretary-General of the Council of the European Union

No. Cion doc.:	SWD(2023) 323 final
Subject:	COMMISSION STAFF WORKING DOCUMENT Commission assessment of the Gas Security of Supply Regulation Accompanying the document REPORT FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT reviewing the application of Regulation (EU) 2017/1938

Delegations will find attached document SWD(2023) 323 final.

Encl.: SWD(2023) 323 final



Brussels, 5.10.2023
SWD(2023) 323 final

COMMISSION STAFF WORKING DOCUMENT

Commission assessment of the Gas Security of Supply Regulation

Accompanying the document

**REPORT FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN
PARLIAMENT**

reviewing the application of Regulation (EU) 2017/1938

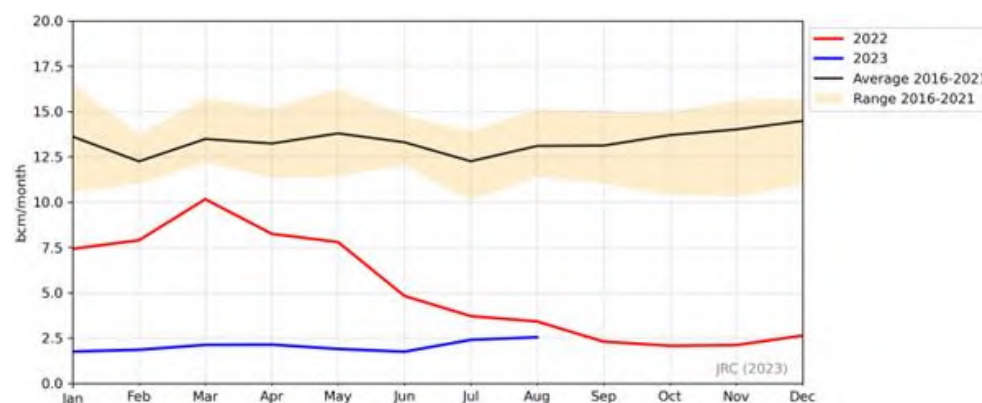
{COM(2023) 572 final}

Staff Working Document Accompanying the Report Reviewing the Gas Security of Supply Regulation (EU) 2017/1938

1. Introduction

As a result of the Russian invasion of Ukraine and the subsequent gas supply disruptions, flows from Russia have been almost entirely replaced by supplies from alternative suppliers in the form of additional pipeline import from trusted partners and, above all, a considerable increase in LNG import (50 bcm increase in 2022 year-on-year). Whereas Russian imports amounted to around 50% of the EU's imports before the war, it represents now less than 10%, showcasing the unprecedented shift the EU's gas system has undergone in the past year.

Figure 1: Monthly gas flow along the East corridor 2016-2023 (in bcm/month).



Source: JRC based on ENTSOG Transparency Platform

In the context of the EU's phase out of Russian gas and the continued supply diversification, as well as the ongoing decarbonisation efforts with increased importance electrification, biomethane and hydrogen, the EU's security of supply architecture will need to continue to adapt according to the changes we will face in the coming years and decades. While this Staff Working Document may primarily focus on gas security of supply, it is of utmost future importance to put the lessons learned in a broader energy security perspective and adopt a more holistic approach including other energy carriers. In the future, this will include the further development of hydrogen and biomethane and its importance for energy security.

Article 17 of the Gas Security of Supply Regulation (EU) 2017/1938 tasks the Commission with drawing submitting a report to the European Parliament and Council on the application of this Regulation, and where necessary, legislative proposals to amend this Regulation.

This Staff Working Document complements the aforementioned report, by providing more details on the Commission's assessment of Member States' Preventive Action Plans and Emergency Plans, as well as by reviewing in further detail the provisions of the Gas Security of Supply Regulation where future action may be required.

2. Commission assessment of Member States' Preventive Action Plans and Emergency Plans

Article 17 of Regulation (EU) 2017/1938 (hereafter: 'the Gas Security of Supply Regulation) requires the Commission to submit a report to the European Parliament and to the Council, based on the Commission's assessments of the updated Preventive Action Plans and Emergency Plans, as stipulated in Article 8(7).

In 2019, Member States submitted their plans to the Commission, after which the Commission made an assessment of the plans and issued a series of opinions with specific recommendations and points where the plans should be improved. This same process should be taking place in 2023 due to a regular 4-yearly update of the plans required by Articles 9(11) and 10(2), as Member States had to submit updated plans by March 2023. However, thus far the Commission has only recently received 7 Preventive Action Plans and 7 Emergency Plans, the majority of which were received in June 2023 and July 2023¹, meaning that the Commission's assessment will be based on the Preventive Action Plans and Emergency Plans submitted in 2019, as well as on the lessons learned from the past year(s).

2.1. Commission assessment and opinions on Member States' Preventive Action Plans and Emergency Plans

2.1.1. Preventive Action Plans

Articles 8 and 9 of the Gas Security of Supply Regulation establish the Preventive Action Plans (PAPs) and require Member States to describe proactive measures that will be taken to reduce risks to prevent a gas emergency from happening. The PAPs are to be based on the results of the national risk assessment and need to contain a regional chapter based on the common risk assessment referred to in Article 7(2). In particular, Article 9(1) stipulates that the PAPs need to include detailed information on the following elements:

- Results of the risk assessments.
- Measures needed to fulfil the infrastructure standard and supply standard.
- Obligations imposed on gas undertakings and other relevant bodies that may impact security of supply.
- Preventive measures designed to address the risks identified in the risk assessments.
- Description of economic impact, effectiveness and efficiency of preventive measures.
- Effect of the measures on the internal market, as well as on national market functioning.
- The impact on the environment and on consumers.
- Cross-border cooperation mechanisms between Member States.
- Information on interconnections and infrastructures, in particular for cross-border flows.
- Information on public service obligations.

¹ The Commission has sent EU Pilots to Member States whose Preventive Action Plans, Emergency Plans and Risk Assessments are missing. For further details, see sections 3.4.1 and 3.5.

In 2019, The Commission issued a series of opinions² on the Preventive Action Plans and on the Emergency Plans (discussed in the section hereafter). The opinions contained the Commission's assessment of the national plans and made targeted recommendations to improve the plans.

While the Commission opinions recognised the overall quality and completeness of the Member States' plans, in particular as regards the description of the specificities of the national gas systems, the Commission's opinions also identified a number of points that were recommended to be improved by Member States, including:

- Completing missing information on **stakeholder consultation**. While it was recognised that most likely a stakeholder consultation took place, the Commission requested several Member States to further elaborate on how their comments were integrated, or not.
- Missing details on compliance with the **supply standard**. Missing data on volumes and capacities, or a lack of a description of the monitoring system to ensure compliance were the most common issues. Other issues include using non-market measures designed for mitigating an emergency for complying with the supply standard.
- Lack of information on the N-1 **infrastructure standard**, most notably a lack of details on capacities. In some cases, parameters were inconsistent between the regional risk assessment and the PAP.
- In some cases, there was a lack of information of the **possible impact of preventive measures** on the economy, the environment, the internal market and/or on consumers.
- While most Member States included a satisfactory description of the national gas system, a few Member States failed to include a sufficient **description of the national or regional gas system**, for example where it concerns main import sources, storage withdrawal capacities, or a breakdown of gas consumption per sector.
- In several Member States' PAPs, there was either an inaccurate definition or insufficient data on **protected customers**. In some instances, it was not made sufficiently clear which 'essential social services' or district heating consumers were considered as protected customers, which made it difficult to determine whether they exceeded 20% of total annual gas consumption, as stipulated in Article 2(5).
- A few plans missed information on the common or national **risk assessments**, or they referred to information in these documents, which are not in all cases public documents.

Despite these shortcomings, the overall quality of the PAPs is generally satisfactory. However, given that most plans include elements that do not fully comply with the Regulation, the Commission requested the majority of Member States to amend their plans accordingly.

2.1.2. Emergency Plans

Articles 8 and 10 of the Gas Security of Supply Regulation establish rules, procedures and substantive requirements for the Emergency Plans (EPs). All Member States (except Cyprus by derogation) have Emergency Plans in place. The Emergency Plans describe, among others what

² [Commission's opinions on the preventive action plans and emergency plans \(europa.eu\)](https://european-council.europa.eu/media/en/press-communications/infographic/infographic-commission-opinions-on-preventive-action-plans-and-emergency-plans-2019-2020-2021-2022-2023-2024-2025-2026-2027-2028-2029-2030-2031-2032-2033-2034-2035-2036-2037-2038-2039-2040-2041-2042-2043-2044-2045-2046-2047-2048-2049-2050-2051-2052-2053-2054-2055-2056-2057-2058-2059-2060-2061-2062-2063-2064-2065-2066-2067-2068-2069-2070-2071-2072-2073-2074-2075-2076-2077-2078-2079-2080-2081-2082-2083-2084-2085-2086-2087-2088-2089-2090-2091-2092-2093-2094-2095-2096-2097-2098-2099-2100-2101-2102-2103-2104-2105-2106-2107-2108-2109-2110-2111-2112-2113-2114-2115-2116-2117-2118-2119-2120-2121-2122-2123-2124-2125-2126-2127-2128-2129-2130-2131-2132-2133-2134-2135-2136-2137-2138-2139-2140-2141-2142-2143-2144-2145-2146-2147-2148-2149-2150-2151-2152-2153-2154-2155-2156-2157-2158-2159-2160-2161-2162-2163-2164-2165-2166-2167-2168-2169-2170-2171-2172-2173-2174-2175-2176-2177-2178-2179-2180-2181-2182-2183-2184-2185-2186-2187-2188-2189-2190-2191-2192-2193-2194-2195-2196-2197-2198-2199-2200-2201-2202-2203-2204-2205-2206-2207-2208-2209-2210-2211-2212-2213-2214-2215-2216-2217-2218-2219-2220-2221-2222-2223-2224-2225-2226-2227-2228-2229-2230-2231-2232-2233-2234-2235-2236-2237-2238-2239-2240-2241-2242-2243-2244-2245-2246-2247-2248-2249-2250-2251-2252-2253-2254-2255-2256-2257-2258-2259-2260-2261-2262-2263-2264-2265-2266-2267-2268-2269-2270-2271-2272-2273-2274-2275-2276-2277-2278-2279-2280-2281-2282-2283-2284-2285-2286-2287-2288-2289-2290-2291-2292-2293-2294-2295-2296-2297-2298-2299-2300-2301-2302-2303-2304-2305-2306-2307-2308-2309-2310-2311-2312-2313-2314-2315-2316-2317-2318-2319-2320-2321-2322-2323-2324-2325-2326-2327-2328-2329-2330-2331-2332-2333-2334-2335-2336-2337-2338-2339-2340-2341-2342-2343-2344-2345-2346-2347-2348-2349-2350-2351-2352-2353-2354-2355-2356-2357-2358-2359-2360-2361-2362-2363-2364-2365-2366-2367-2368-2369-2370-2371-2372-2373-2374-2375-2376-2377-2378-2379-2380-2381-2382-2383-2384-2385-2386-2387-2388-2389-2390-2391-2392-2393-2394-2395-2396-2397-2398-2399-2400-2401-2402-2403-2404-2405-2406-2407-2408-2409-2410-2411-2412-2413-2414-2415-2416-2417-2418-2419-2420-2421-2422-2423-2424-2425-2426-2427-2428-2429-2430-2431-2432-2433-2434-2435-2436-2437-2438-2439-2440-2441-2442-2443-2444-2445-2446-2447-2448-2449-2450-2451-2452-2453-2454-2455-2456-2457-2458-2459-2460-2461-2462-2463-2464-2465-2466-2467-2468-2469-2470-2471-2472-2473-2474-2475-2476-2477-2478-2479-2480-2481-2482-2483-2484-2485-2486-2487-2488-2489-2490-2491-2492-2493-2494-2495-2496-2497-2498-2499-2500-2501-2502-2503-2504-2505-2506-2507-2508-2509-2510-2511-2512-2513-2514-2515-2516-2517-2518-2519-2520-2521-2522-2523-2524-2525-2526-2527-2528-2529-2530-2531-2532-2533-2534-2535-2536-2537-2538-2539-2540-2541-2542-2543-2544-2545-2546-2547-2548-2549-2550-2551-2552-2553-2554-2555-2556-2557-2558-2559-2560-2561-2562-2563-2564-2565-2566-2567-2568-2569-2570-2571-2572-2573-2574-2575-2576-2577-2578-2579-2580-2581-2582-2583-2584-2585-2586-2587-2588-2589-2590-2591-2592-2593-2594-2595-2596-2597-2598-2599-2600-2601-2602-2603-2604-2605-2606-2607-2608-2609-2610-2611-2612-2613-2614-2615-2616-2617-2618-2619-2620-2621-2622-2623-2624-2625-2626-2627-2628-2629-2630-2631-2632-2633-2634-2635-2636-2637-2638-2639-2640-2641-2642-2643-2644-2645-2646-2647-2648-2649-2650-2651-2652-2653-2654-2655-2656-2657-2658-2659-2660-2661-2662-2663-2664-2665-2666-2667-2668-2669-2670-2671-2672-2673-2674-2675-2676-2677-2678-2679-2680-2681-2682-2683-2684-2685-2686-2687-2688-2689-2690-2691-2692-2693-2694-2695-2696-2697-2698-2699-2700-2701-2702-2703-2704-2705-2706-2707-2708-2709-2710-2711-2712-2713-2714-2715-2716-2717-2718-2719-2720-2721-2722-2723-2724-2725-2726-2727-2728-2729-2730-2731-2732-2733-2734-2735-2736-2737-2738-2739-2740-2741-2742-2743-2744-2745-2746-2747-2748-2749-2750-2751-2752-2753-2754-2755-2756-2757-2758-2759-2760-2761-2762-2763-2764-2765-2766-2767-2768-2769-2770-2771-2772-2773-2774-2775-2776-2777-2778-2779-2780-2781-2782-2783-2784-2785-2786-2787-2788-2789-2790-2791-2792-2793-2794-2795-2796-2797-2798-2799-2800-2801-2802-2803-2804-2805-2806-2807-2808-2809-2810-2811-2812-2813-2814-2815-2816-2817-2818-2819-2820-2821-2822-2823-2824-2825-2826-2827-2828-2829-2830-2831-2832-2833-2834-2835-2836-2837-2838-2839-2840-2841-2842-2843-2844-2845-2846-2847-2848-2849-2850-2851-2852-2853-2854-2855-2856-2857-2858-2859-2860-2861-2862-2863-2864-2865-2866-2867-2868-2869-2870-2871-2872-2873-2874-2875-2876-2877-2878-2879-2880-2881-2882-2883-2884-2885-2886-2887-2888-2889-2890-2891-2892-2893-2894-2895-2896-2897-2898-2899-2900-2901-2902-2903-2904-2905-2906-2907-2908-2909-2910-2911-2912-2913-2914-2915-2916-2917-2918-2919-2920-2921-2922-2923-2924-2925-2926-2927-2928-2929-2930-2931-2932-2933-2934-2935-2936-2937-2938-2939-2940-2941-2942-2943-2944-2945-2946-2947-2948-2949-2950-2951-2952-2953-2954-2955-2956-2957-2958-2959-2960-2961-2962-2963-2964-2965-2966-2967-2968-2969-2970-2971-2972-2973-2974-2975-2976-2977-2978-2979-2980-2981-2982-2983-2984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needs to be done in case of gas supply disruptions, by whom it needs to be done and how this should be achieved, as stipulated by Article 10.

- It defines the role and responsibilities of (a) anyone that can be potentially affected in case of a gas disruption (gas undertakings, industrial gas consumers, but also gas and electricity TSOs and producers) and (b) competent authorities.
- It describes the measures to be taken to mitigate the impact of a gas disruption, including predefined actions to make gas available in case of emergency and it ensures that ample time is given to the relevant bodies to respond to a crisis level of Article 11. These measures are split between the contribution of market measures and non-market measures (including arrangements to prevent undue consumption of non-protected customers).
- It establishes detailed procedures and protocols/information flows to be applied in case of emergency (this includes designating a crisis manager). It includes liaising with authorities of neighbouring Member States (and a description of the existing solidarity arrangements). In addition, an estimation of solidarity-protected customers' demand has to be given.

The Commission adopted opinions on each of these plans. The most frequent comments concerned the lack of solidarity agreements and insufficient description of the measures foreseen (both the market-based and non-market-based measures) and their contribution in terms of volume saved or supplied to solve a crisis. The **lack of bilateral solidarity agreements** are assessed to be a particular vulnerability in the gas security of supply architecture and the Commission has repeatedly stressed the importance of tackling this vulnerability either through accelerating the bilateral work, or via common solidarity rules applicable by default.

While the Emergency Plans generally follow the structure required by the Regulation and a certain degree of response flexibility is embodied in the documents, most of the **plans do not discuss measures beyond their qualitative aspects**. Market-based measures for coping with the situation at alert level and mitigating the situation at emergency level are in most instances presented. The contribution of non-market-based measures planned or to be implemented for the emergency level is typically discussed qualitatively, while a quantitative assessment of their impact is generally lacking. Procedures for their implementation are not always properly defined, meaning that explicit priority orders for disconnection are in most cases not presented. In some instances measures qualified as market-based seem in fact to be non-market-based and vice versa. In addition, not all Member States notified the specific emergency measures foreseen for the electricity generation and district heating sectors.

Many of the EPs indicate the importance of **interruptible contracts**. Some mention measures where consumers voluntarily reduce their consumptions and shed loads typically in the early warning phase and often with some type of monetary compensation, essentially rendering them demand-side market measures. However, interruptible contracts are usually mentioned in the context of the emergency phase where enforced curtailments take place under orders from the competent authorities, a clear example of a non-market measure. The majority of the plans do not attempt to quantify the impact of such curtailments, with a few exceptions.

The same conclusion applies to the issue of **fuel switching**: the majority of plans mention their application but quantification is usually lacking preventing a straightforward estimate of the order of magnitude of the impact of its implementation at EU and per Member State. Alternative fuel obligations are not always explicitly stated.

In addition, the EPs generally **lacked a sufficient regional dimension**, in particular as regards the impact of measures on neighbouring Member States' by e.g. reducing transit flows in an emergency. In some instances, the Commission requested Member States to adapt its EP to provide more info, especially to ensure that measures are in compliance with Article 11(6). The EPs also tended to lack regionally agreed measures in case of regional crises. Several Member States fail to include information on how and when the EPs were tested, as required by Article 10(3).

2.2. Gas Coordination Group discussions

The Gas Coordination Group (GCG), deriving its legal basis from Article 4 of the Gas Security of Supply Regulation, has been convened on a regular basis since 2017 to discuss, among others, the implementation of the aforementioned regulation.

Since the Russian invasion of Ukraine, the GCG was convened with a high frequency to discuss latest developments regarding security of gas supply, as well as the implementation of the Gas Security of Supply Regulation with a particular focus on the EU's preparedness for a possible gas crisis, crisis management procedures (including discussing the activation of national crisis levels) and the lack of solidarity arrangements.

Discussions with Member States and stakeholders in this forum has allowed for direct feedback on the implementation of the Gas Security of Supply Regulation, which has featured in this report.

2.3. Risk preparedness reports 2022

To assess any imminent risks stemming from possible supply cuts, as well as the EU's and Member States' overall level of preparedness for such disruptions, the Commission carried out two reports in Q1 and Q2 of 2022. The first report analysed the possible risks related to potential Russian supply cuts, while the second report focussed more on the EU's preparedness and corresponding recommendations to improve the EU's preparedness to such supply disruptions. These reports were shared with Member States and the main conclusions were discussed in the GCG.

The conclusion of the **first report** (Q1 2022) was based on the assessment that at the time, the ongoing winter 2021-2022 would most likely be safe, partly due to the preparedness of Member States via their Emergency Plans. This assessment was based on simulations of supply disruptions together with e.g. cold spells and peak days in winter. Even in worst case scenarios, security of supply was for the winter 2021-2022 guaranteed. Nevertheless, this risk preparedness analysis pointed to several risks, in particular for the refilling of storages and called for more granular data from Member States on the potential of demand response, interruptible contracts, fuel switching and the share of non-protected customers in the different seasons.

The **second report** (Q2 2022) was issued after the European Council³ had asked the Commission to propose a plan to ensure security of supply for next winter, ensure sufficient levels of gas storage and reinforce EU contingency planning for security of supply. This report gave an overview of the EU's preparedness and gave recommendations on good practices for Member States. The main points of action at Member State level that were identified were:

- (1) All Member States should establish crisis teams, who should be in direct contact with crisis managers from neighbouring Member States and the Gas Coordination Group.
- (2) Full cooperation between Member States and no restrictions of transit are essential.
- (3) Maximising energy savings across sectors, via e.g. information campaigns was assessed to allow extra flows towards disrupted Member States and free up gas for storage filling.
- (4) Keeping low carbon power generation online was at the time assessed to delay the need for additional gas for power.
- (5) Engage in dialogue with industry for rescheduling production, and prepare a proper load-shedding plan including a clear priority order in case of a severe shortage.
- (6) Accelerate the lease/purchase of Floating Storage and Regasification Units (FSRUs) to facilitate alternative supplies.
- (7) Pursue investments in low carbon and renewables gases and renewable and low carbon hydrogen to substitute natural gas.

In addition, the second report identified potential EU-level actions, based on Member State input via a questionnaire:

- (1) Further develop the EU Energy Platform to pool demand and optimize import capacities.
- (2) Facilitate network optimisation by TSOs via coordination to ensure gas flows from West to East and to prioritise flows to storage.
- (3) A guidance on prioritisation criteria to identify essential customers that are not yet protected under the current Gas Security of Supply Regulation.
- (4) EU-wide coordination of demand reduction with pre-emptive measures on a voluntary basis in an alert phase, to avoid uncoordinated curtailments in an emergency.
- (5) The creation of an EU-wide alert level, that allows for a wider range of measures to be implemented before an emergency.
- (6) Providing guidance regarding state aid measures, industrial emissions directive and third package gas rules, to facilitate efficient use of LNG terminals, storages, production or fuel switching.

The majority of these measure were followed up on by the Commission and Member States to complement the architecture of the security of supply policies to adapt to the new geopolitical landscape. It was notably done by (1) continued work on the Energy Platform and AggregateEU⁴, (2) discussions in the Gas Coordination Group with the participation of ENTSOG, (3) the “Save

³ [20220311-versailles-declaration-en.pdf \(europa.eu\) and the conclusions of the EUCO of 25 March](#)

⁴ https://energy.ec.europa.eu/topics/energy-security/eu-energy-platform_en

Gas for a Safe Winter” Communication⁵, (4) the Demand Reduction Regulation⁶ and (5) Temporary Crisis and Transition Framework for state aid rules⁷ and clarifications on possible derogations for fuel switching provided to Member States for the Industrial Emissions Directive.

3. Review on Regulation (EU) 2017/1938 and possible means to enhance security of gas supply

Given that the updated plans were largely missing as outlined in section 2, the Commission circulated a questionnaire to consult members of the Gas Coordination Group on the provisions of the Gas Security of Supply Regulation.

3.1. Gas Coordination Group

The Gas Coordination Group (GCG) derives its legal basis from Article 4 of the Gas Security of Supply Regulation, which stipulates that the GCG is chaired by the Commission and is composed of representatives of Member States, ACER, ENTSOG and bodies representing industries and consumers. The Commission can, in consultation with Member States, decide on the composition of the GCG, to ensure it is fully representative.

The GCG is to be consulted and is tasked with assisting the Commission on matters related to security of gas supply, in particular in times of crisis. The Commission may convene the GCG in a setting restricted to Member States’ representatives only.

3.1.1. Functioning during the 2022 crisis

In the course of 2022, the GCG has been convened a record number of 24 times both in unrestricted and restricted format, i.e. including also EU associations or only with Member States. In particular, the latest developments regarding security of gas supply in the context of the Russian invasion of Ukraine and the subsequent gas supply disruptions were discussed. In addition, exchanges were facilitated on best practices on preventive and emergency measures, as well as on next steps for EU-wide measures to enhance preparedness, which played a key role in informing the Commission in order to propose new legislative proposals, such as the Storage Regulation⁸, the Demand Reduction Regulation⁹ and the Solidarity Regulation¹⁰. Representatives of the GCG indicated in their responses to a questionnaire circulated by the Commission to the GCG in May 2023 that they appreciated the functioning of the group, primarily praising its adaptable and flexible format.

Despite the fact that the GCG has proven to be a well-functioning, flexible and responsive forum to discuss latest developments regarding security of gas supply, there may be scope to further

⁵ [EUR-Lex - 52022DC0360 - EN - EUR-Lex \(europa.eu\)](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022DC0360)

⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R1369>

⁷ https://competition-policy.ec.europa.eu/state-aid/temporary-crisis-and-transition-framework_en

⁸ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R1032>

⁹ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R1369>

¹⁰ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R2576>

improve its functioning. For example, a challenge is to ensure a similar level of engagement across all Member States and stakeholders, to guarantee that all perspectives are heard and considered.

In addition, some members of the GCG indicated that there may be overlap with the Crisis Management Group as defined in Article 12(4). Some GCG members indicated that they would prefer if these crisis management functions would be delegated to the GCG, while others argued that this Crisis Management Group could be turned into a standing group also outside of an emergency, consisting of experts who have operational expertise who can be tasked with e.g. data sharing and processing, which in turn can inform discussions in the GCG.

3.1.2. Future composition

Considering lessons learned in 2022, as well as the changing security of supply landscape in coming years, further considerations should be given as to whether the current composition is still fit for purpose.

More specifically, the GCG should reflect on the role of consumer associations, whose perspectives are essential, in particular in times of crises, but who have not always participated in the discussions.

In addition, the Commission extended ad hoc invitations to third countries for a GCG meeting, especially the United Kingdom and Switzerland as important transit countries, to exchange views on security of gas supply. Several Member States expressed their positive opinion to these invitation and further reflection should be given to whether these ad hoc invitations should be made with greater frequency. Several GCG representatives indicated in their responses to a questionnaire circulated by the Commission to the GCG in May 2023, that they would consider it appropriate to further reflect on whether these ad hoc invitations can also be sent to supplier countries, such as e.g. Norway, Algeria or the US.

Key takeaways:

- GCG is adaptable and flexible and can guarantee all voices are heard if members engage equally.
- Further consideration should be given to inviting third countries supplying or transiting gas.
- Overlap with the Crisis Management Group should be addressed.

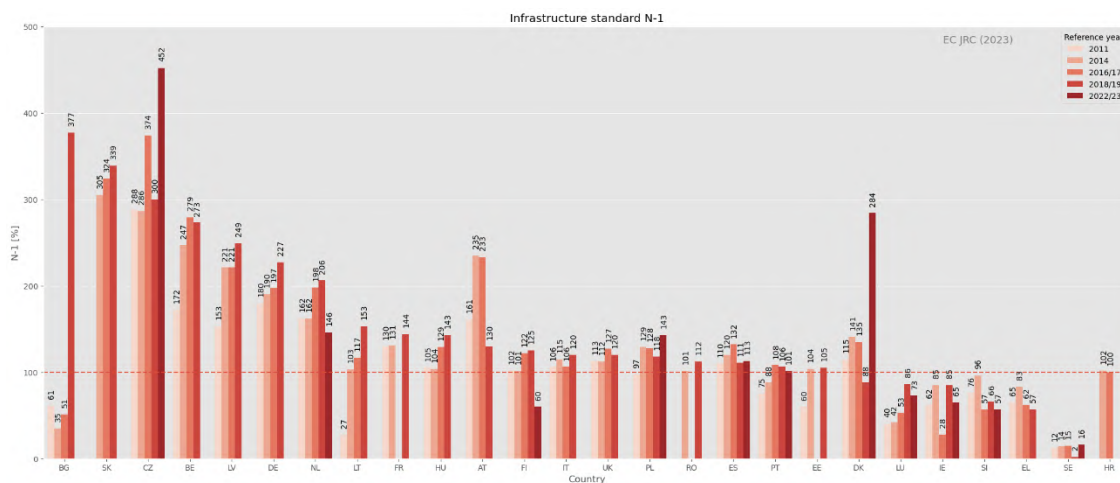
3.2. The infrastructure standard

Article 5 of the Gas Security of Supply Regulation establishes the obligation for competent authorities to ensure that the necessary measures are taken, so that in case of a disruption of the single largest infrastructure (e.g. interconnections, production sites, storage or LNG facilities) still the total gas demand can be satisfied during a day of exceptionally high gas demand (1 in 20 years). This calculation shall be done based on the **N-1 formula**, as set out in Annex II. Since the N-1 formula is a purely capacity-based approach, competent authorities should complement this formula with hydraulic modelling of the national network under the conditions of the infrastructure

standard, as stipulated by Article 7(4a). The infrastructure standard is also considered fulfilled when the competent authority demonstrates in the PAP appropriate demand side measures.

Given the low number of updated PAPs and EPs received by the Commission, current compliance with the N-1 standard cannot be accurately assessed. However, considering the figures in between 2016 and 2019, a general level of improvement over the years can be observed, as showcased in Figure 2. Three Member States with small and isolated gas markets – Sweden, Luxemburg, and Slovenia – are exempted from the N-1 rule, due to Article 5(9) of the Gas Security of Supply Regulation.

Figure 2: Infrastructure standard (N-1) per Member State



Source: JRC based on Member States’ PAPs and EPs, sorted according to the value of the standard for 2018/2019

Respondents to the questionnaire circulated to the Gas Coordination Group indicated that the N-1 standard was a good incentive to have adequate infrastructure capacities. However, some indicated that the N-1 should not be based on a single peak day demand, but rather on a longer period, given that disruptions may last longer than a single day. Others stressed the need to complement this infrastructure-based approach with a larger focus on the supply side, e.g. by having complementary diversification standards, including ensuring that our LNG supply of the future remains diversified.

A large number of Member States either find difficulties to perform the hydraulic modelling in support of the infrastructure standard or do not explain in a detailed manner the simulations done. This makes it difficult to identify the potential existence of internal bottlenecks in the national networks, particularly under the conditions of the standard.

3.2.1 Bi-directional capacities

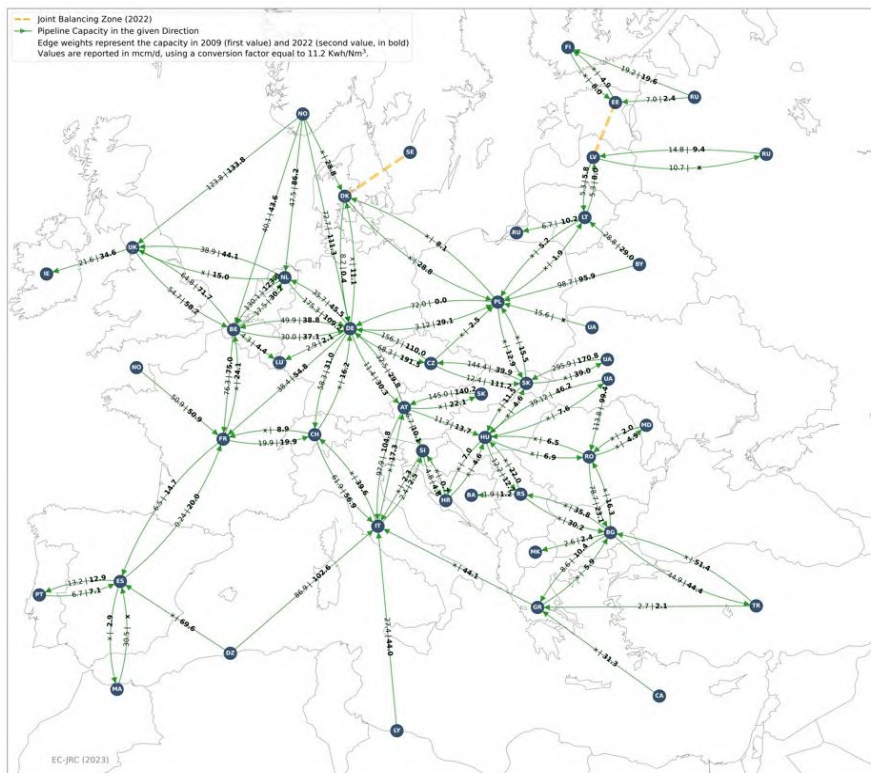
An essential part of the infrastructure standard has been the obligation on TSOs to establish **bi-directional capacity** on interconnections between Member States, based on Article 5(5).

This obligation applies to all interconnections between Member States, unless (1) it is a connection to a production facility, LNG facility or distribution network, or (2) a specific exemption has been granted based on e.g. Article 5(9) or Annex III point 5(b). Annex III allows competent authorities – which may be delegated to the National Regulatory Authority – to grant a four-year exemption if the cost-benefit analysis shows that reverse flow capacity would not enhance security of supply or if the investment costs would significantly outweigh the prospective security of supply benefits.

Since the establishment of the Security of Supply Regulation, there have been a number of infrastructure developments that have improved bi-directional capacities between Member States.

Figure 3 shows the improvements made in recent years to ensure bi-directional capacities, which are substantial, and which were paramount to facilitate reverse flows in 2022, after Russia disrupted flows to several Member States.

Figure 3: physical bi-directional capacity at cross-border interconnection points in Europe



Source: JRC

While several interconnections between Member States are exempted from the bi-directional capacity obligation, the Commission decided via Commission Decision C(2020)6600¹¹ that the following exemptions were to be reviewed:

- Mosonmagyaróvár, between Austria and Hungary;
- Murfeld – Ceršak, between Austria and Slovenia;

¹¹ https://energy.ec.europa.eu/system/files/2020-12/c_2020_6600_fl_commission_decision_en_0.pdf

- Blaregnies – Tasnières, for high calorific gas, between Belgium and France;
- Karksi, between Estonia and Latvia.

Since this Commission decision was published, ACER has issued an opinion on the Mosonmagyaróvár¹² and Murfeld - Ceršak¹³ interconnections. For both the Mosonmagyaróvár and Murfeld - Ceršak interconnections, ACER adopted the opinion that the N-1 standard was in Austria already at an adequate level, meaning that a prolongation of the exemption was justified, given that reverse flows would only marginally improve the N-1 standard in Austria, while it may result in inefficient investments. By absence of a Commission decision, the Commission agreed to the exemption proposals.

The exemption for bi-directional capacities of the Karksi interconnection has in the meantime become obsolete, as a result of the PCI project aiming to enhance cross-border capacity and installing a metering station in Karksi.

3.2.2 The N-1 and S-1 concepts

During 2022, an unprecedented crisis has started to materialise, since the permanent disruption of Russian gas imports, by then the largest supplier to the EU, has materialised for most supply routes. The total disruption of all Russian imports in the very short-term is now considered realistic. The N-1 standard provides a degree of security by ensuring permanent bi-directional capacity between Member States and it ensures that enough infrastructure is available to mitigate certain crises. This mechanism to ensure adequate capacities under specific challenging circumstances has certainly helped to mitigate the crisis experienced in 2022, and has facilitated the changing flow patterns that reversed and now run primarily West to East.

Nevertheless, the N-1 standard is not tailored to mitigate a crisis of total supply disruption from one single supplier. Therefore, on top of the N-1 standard, further consideration could be given on how to develop additional or strengthened standards to prevent in the future a similar vulnerability to a certain supplier, such as an additional **S-1 standard**. As is the case with the current N-1 standard, such considerations should weigh the benefits this may have for an additional level of security of supply against any potential costs or inefficiencies that may arise. This may be facilitated via a reinforced information exchange under Article 14. In particular, members of the Gas Coordination Group stressed the need to avoid the risk of creating stranded assets. The standards should therefore remain in line with the EU's decarbonisation objectives.

Key takeaways:

- The infrastructure standard is relevant to guarantee adequate capacities and facilitated reverse flows during the crisis in 2022.
- Complementary standards could cover supply diversification needs.

¹² https://acer.europa.eu/Official_documents/Acts_of_the_Agency/Opinions/Opinions/ACER%20Opinion%2001-2022%20on%20HU-AT%20Reverse%20Flow.pdf

¹³ https://acer.europa.eu/Official_documents/Acts_of_the_Agency/Opinions/Opinions/ACER%20Opinion%2002-2022%20on%20SI-AT%20Reverse%20Flow.pdf

- Standards need to be balanced with the need to avoid creating stranded assets and support decarbonisation objectives.

3.3. Supply standard and protected customers

Article 6 of the Gas Security of Supply Regulation sets out the **supply standard**, which obliges Member States to require gas undertakings to take measures to ensure the gas supply to protected customers under a set of pre-defined circumstances, namely:

- Extreme temperatures during a 7-day peak period (statistical probability of once in 20 years);
- A 30 day period of exceptionally high gas demand (statistical probability of once in 20 years);
- A 30 day period of a disruption of the single largest gas infrastructure under average winter conditions.

Protected customers as defined under Article 2(5), include households and Member States may under certain conditions include (1) SMEs, (2) essential social services and (3) district heating. However, during the energy crisis of 2022, and after the adoption of the Demand Reduction Regulation (EU) 2022/1369, the role of voluntary demand reduction of all sectors became of increasing importance. Therefore, Article 24 of the temporary Regulation (EU) 2022/2576 introduced the possibility for Member States to take measures that reduce the non-essential consumption of protected customers, provided that these customers do not fall under the label of vulnerable consumers as defined under Article 3(3) of Directive 2009/73/EC.

To ensure compliance with the supply standard, Member States were required in 2018 to notify to the Commission the definition of protected customers, the annual demand of protected customers and the share of protected customers in total annual gas consumption. Ultimately, Member States are required to ensure compliance of natural gas undertakings with the supply standard.

Member States are allowed to increase supply standards for security of supply reasons, provided the measure does not negatively impact other Member States to supply their protected customers, and it complies with Article 8(1) or Article 12(5) in case of an EU or regional emergency.

3.3.1. Lessons learned

The feedback received from the Gas Coordination Group, as response to the questionnaire circulated by the Commission, is generally positive about the current supply standard, indicating that it is complementary to the infrastructure standard. Many Member States indicated that they are **not experiencing major challenges implementing the supply standard**.

However, some of the respondents indicated that the 1 in 20 years peak demand does not consider any future developments on the supply or demand side, e.g. due to phase out of gas demand or due to climate change. Other respondents mentioned that there is a risk that the supply standard is easier to uphold by storing gas for larger companies than for smaller companies, leading to a risk of competition issues.

Regarding protected customers, some Member States pointed towards **difficulties estimating protected customers' demand**, in particular when it is not on annual basis. Particularly, estimating the demand in the two first cases of the supply standard is a real challenge when daily metering is not available, as it is the case in many countries for small consumers like households. To that end, some respondents considered it useful to have further harmonisation of the protected customers' definition on EU level, by excluding the 'option' to include certain non-household demand under protected customers, by having one clear definition across the EU. Others urged that national specificities and particularities of national or regional gas systems need to be considered. Regarding the possibility to reduce non-essential consumption of protected customers, several respondents indicated that they consider this a useful provision to keep beyond the expiration of Regulation (EU) 2022/2576 as it provides additional flexibility. Moreover, given that household demand may in some Member States be phased out sooner than other sectors, this may require a reconsideration of the protected customers definition in some Member States to adjust to a changing demand profile.

Key takeaways:

- No major issues reported by respondents in implementing or enforcing the supply standard.
- The supply standard may be easier to uphold for larger companies than for smaller undertakings.
- Further harmonisation of the definition of protected customers on EU level may be needed.
- The non-essential consumption of protected customers clause is a provision considered useful.

3.4. Risk assessments and regional risk groups

In order to be prepared for possible security of gas supply risks, the Gas Security of Supply Regulation establishes an architecture of risk assessments and regional risk groups, laid out in Article 7 and Annexes I, IV and V.

This architecture starts with an EU-wide simulation of gas supply and infrastructure disruption scenarios conducted by ENTSOG, after which Member States are to make a common risk assessment (CRA) in dedicated regional risk groups, that are grouped around import routes as stipulated in Annex I. In addition, Member States are also required to make a national risk assessment with various disruption scenarios. Templates for the national and common risk assessments are provided in Annexes IV and V.

Both the common and national risk assessments need to test or consider:

- The infrastructure standard (N-1);
- The relevant national and transnational circumstances (e.g. market size, network configuration, flows, bidirectional capacities, presence of production or storages sites and the role of gas in the energy mixes);

- A number of scenarios simulating exceptionally high gas demand and supply disruptions, including (1) disruption of relevant infrastructure or (2) supply disruptions from third countries as well as geopolitical risks;
- The interaction of risks between Member States in the risk groups and Member States in other risk groups;
- Risks relating to the control of infrastructure, e.g. risks of underinvestment, undermining diversification, misuse of infrastructure or infringement of EU law;
- Considering the maximum interconnection capacity between Member States and respective storage filling levels.

In turn, the common and national risk assessments are part of the foundation for the Preventive Action Plans and Emergency Plans, which should also include a regional chapter that are to be developed jointly by Member States in the regional risk groups.

3.4.1. Compliance - regional risk groups and risk assessments

The first common and national risk assessments have been conducted in 2018, after which they are to be updated every four years. Due to the challenges faced during the energy crisis in 2022, several Member States indicated they **lacked administrative capacity** to conduct the risk assessments on time.

By mid-June 2023 the Commission has received only a few national risk assessments from PT, IE, ES, DK. At regional level, the CRAs of the regional Risk Groups (RGs) were received of the Algerian RG, the Denmark RG, the Trans-Balkan RG, the Baltic Sea RG, Belarus RG, the Ukraine RG and the Libyan RG. The Commission has no confirmation on planned delivery of the CRA of the Caspian RG, Norway-UK RG, the Low Calorific Gas RG and the North-East RG.

Beyond the non-compliance *per se*, these risk assessments and the related Preventive Action Plans and Emergency Plans are of utmost importance for the EU's risk preparedness for next winter and subsequent years.

Several reminders have been made during meetings of the Gas Coordination Group. The Commission had initially not pursued EU Pilots or infringement procedures due to the exceptional nature of the past year where Member States were busy preparing for a possible emergency situation. However, due to a lack of progress and due to the importance of being prepared for the upcoming winter, **Commission decided to launch 26 EU Pilots** in mid-June, to ensure that Member States prepare and notify the risk assessments and the corresponding Preventive Action Plans and Emergency Plans.

3.4.2. Lessons learned

From the experience of updating the risk assessments and the functioning of the risk groups in the past years, as well as via feedback received from GCG members via a questionnaire, a number of questions or concerns have arisen:

- The current **regional approach to the risk groups is no longer fit for purpose**, given the changed geopolitical landscape, the risen prominence of LNG in the EU's supply mix and the reduced role of some of the pipeline supply corridors. Less infrastructure bottlenecks exist than in the past, reducing in most cases the regional effects.
- Some respondents indicated that they **preferred an EU-wide approach**, possibly with regional sensitivity analyses, with a reinforced role of the Commission's Joint Research Centre.
- Leading the risk groups and developing the Common Risk Assessment was considered a large **administrative burden** by several Member States, especially in times of crises with competing priorities. Some argue for reducing the number of regional risk groups.

The Commission can amend Annex I via Delegated Act. Further discussions should be held in the Gas Coordination Group as to whether this would facilitate a process with less administrative burden for Member States.

Key takeaways:

- Risk assessments are key to the security of supply preparedness of the EU.
- Current composition and functioning of the regional risk groups considered no longer fit for purpose.
- Lack of administrative capacity key issue for coordinating risk groups and deliver risk assessments.
- An EU-wide approach with regional sensitivities may be more efficient.

3.5. Preventive Action Plans and Emergency Plans

As explained in detail in section 2.1, the Preventive Action Plans (PAPs) and Emergency Plans (EPs) are based on Articles 8, 9 and 10 of the Gas Security of Supply Regulation. The PAPs aim to prevent crises from materialising and are based on the national and common risk assessments, while the EPs indicate the procedures, responsibilities and measures to be taken during a crisis.

3.5.1. Lessons learned: Commission's assessment of the plans

As indicated in section 2.1, the Commission's assessment shows that while the plans contain relevant information and generally the quality is satisfactory, there are important elements missing. This can be divided into two types of missing information:

- 1) Information required by the Regulation that was not included in the plans, which has been in detail discussed in section 2.1.
- 2) Information that is not required by the Regulation, but based on the experience of the last years would improve the plans in the future.

However, regarding the second point, further reflection may be needed for areas that are known from experience gained in either developing or assessing the plans, which could be important to include in future plans but that are not currently required by the Gas Security of Supply Regulation:

- The progress made in the **phase out of Russian gas** and a description and projection of **diversification efforts** as part of the description of the national gas system. A breakdown of gas import sources per country of origin is already required by Annex VI. However, this may not reflect an accurate picture, in case a Member State is undertaking efforts to diversify away from a certain supplier, or if certain long-term contracts are expiring. Therefore, a description or projections of ongoing diversification efforts may be needed, in case this would significantly change the future supply landscape of the MS in question. Alternatively, this could be facilitated via a reinforced information exchange based on Article 14.
- An estimate of the **changing breakdown of gas consumption** in light of planned phase out of natural gas in certain sectors. Where a Member State knows that in the period before the next update of the PAP natural gas will be slowly phased out, and it knows this may affect the composition of the breakdown of gas demand (e.g. certain sectors may phase out gas quicker than others), it should provide a quantitative estimate of this development. This may also include the impact of ongoing electrification efforts and the role that gas would play in the adequacy of the electricity system.
- Apart from the role that domestic production, including biomethane, plays in the national gas system, further reflection should be given on whether national **hydrogen strategies** should be included in the plans. This is of particular importance if it impacts security of gas supply or the replacement of gas demand in specific sectors, notably in the context of developing a secure European hydrogen market.

The Commission can amend the Annexes VI and VII via a Delegated Act. Further discussions should be held in the GCG as to whether this would facilitate a process with less administrative burden for Member States, while ensuring a higher quality of substance of the plans.

The Commission had initially not pursued EU Pilots or infringement procedures due to the exceptional nature of the past year where Member States were busy preparing for a possible emergency situation. However, due to a lack of progress and due to the importance of being prepared for the upcoming winter, Commission decided to launch 26 EU Pilots mid-June, to ensure that Member States prepare and notify the risk assessments and the corresponding Preventive Action Plans and Emergency Plans.

Given the late submission of the PAPs and EPs by the vast majority of Member States, as was further detailed in section 3.4.1., consideration should be given to whether the Article 8(7) assessment of these plans should in the future continue to form the basis of the Article 17 report.

3.5.2. Four-year test of the Emergency Plans

Apart from the points listed in sections 2.1 and 3.2.1, particular attention should be paid to the obligation of Article 10(3), which requires Member States to **test the provisions at least once every four-years**. These tests can in turn benefit the operational applicability of the emergency measures for the update of the EPs that is due every four years.

While Member States indicated via their responses to the questionnaire circulated to the GCG that the plans are regularly tested on national level, the EPs often contain little information on the conclusions of these tests, nor on the timeline for when these tests are foreseen. Beyond the information provided in the plans, Member States have in most instances also not provided the information through other channels, such as via Gas Coordination Group discussions.

The Commission considers these tests to be particularly important and encourages Member States to test the emergency provisions as a matter of priority, which should take into account the lessons learned during the crisis of 2022. When not already foreseen, the Commission would like to stress that Member States should include the lessons learned while performing these tests into the updated Emergency Plans, as per Article 10(2).

3.5.3 Solidarity test ('dry run' exercise)

While Emergency Plans can generally be improved, the solidarity test ('dry run' exercise) performed jointly by the Commission, Member States and ENTSOG in December 2022 confirmed the important role of the EPs to ensure a quick and efficient response to an emergency situation. In particular, Member States confirmed during the solidarity test that it was imperative for the Commission to check the EPs for measures that could have cross-border impacts, such as those restricting cross-border flows or capacities.

Key takeaways:

- Preventive Action Plans and Emergency Plans are essential to security of supply preparedness and solidarity mechanisms.
- Substance of the plans can be improved, e.g. by adding:
 - a projection of the phase out of Russian gas and the diversification of supply;
 - an estimate of changing gas demand composition, and;
 - a projection of national hydrogen strategies and the impact on gas security of supply.

3.6. Responsibilities in different crisis levels

One of the core provisions of the Gas Security of Supply Regulation is the establishment of different national and EU-wide crisis levels. Article 11 in particular defines the following three national crisis levels:

- a) **Early warning:** when an event may occur that likely will result in a significant deterioration of the gas supply situation.
- b) **Alert:** when a gas supply disruption or exceptionally high demand occurs resulting in a significant deterioration but the market can still manage the situation.
- c) **Emergency:** when there is a significant supply deterioration or exceptionally high demand and all market-based measures have been exhausted but supply is insufficient to meet the remaining gas demand so that non-market-based measures must be introduced.

In addition to these national crisis levels, Article 12 allows the Commission to declare a **regional or EU-wide emergency**, during which the Commission has a coordinating responsibility and it is

obliged to e.g. ensure (1) information exchange, (2) ensure consistency and effectiveness of Member State actions and (3) coordinate actions vis-a-vis third countries. In addition, the Commission can convene a Crisis Management Group, consisting of national crisis managers established under Article 10(1).

With the establishment of the Demand Reduction Regulation (EU) 2022/1369 and its prolongation (EU) 2023/706, an **EU alert** level was created as a response to the Russian invasion of Ukraine and the subsequent gas supply disruptions from Russia. If this alert level is to be triggered, it would commit Member States to an obligatory 15% gas demand reduction.

3.6.1. Lessons learned and feedback from the GCG

During the energy crisis of 2022, and in particular during the solidarity test, or ‘dry run’ exercise performed in December 2022, it was considered by participants that the **EU emergency level should be further defined**. The criteria for when a regional or when an EU emergency should be declared are considered not sufficiently clear, in particular the difference between EU and regional emergency and the role of the Commission in an emergency. During the aforementioned dry run exercise, as well as via the questionnaire submitted to the Gas Coordination Group, respondents indicated that an EU-wide emergency would most likely be more effective, as it would include those Member States that may still be in a position to help those in need. However, Member States indicated that the declaration of an EU emergency would not necessarily result in the declaration of a national emergency level, which in some Member States would allow for introducing non-market measures.

In addition, some Member States indicated that they would appreciate further guidance or coordination on the triggering and de-activation of national crisis levels, as well as on the transition from market to non-market measures.

In correspondence with the undefined nature of an EU emergency, the role of the Commission in an EU emergency is comparatively undefined and ambiguous beyond its coordinating tasks. This is in contrast to the role of the Commission in the newly established EU alert, where the role of the Commission in monitoring, coordinating and enforcing demand reduction is clearer. To that end, some Member States provided feedback via the questionnaire submitted to the GCG that the establishment of an **EU emergency plan** may be useful, in particular to clarify the roles and responsibilities of different EU bodies and national authorities in an emergency.

3.6.2. Reflection of temporary measures introduced in 2022

The Demand Reduction Regulation (EU) 2022/1369 established in 2022 the EU alert level which was prolonged via Regulation (EU) 2023/706 and which will expire at the end of March 2024. Therefore, further reflection should be given whether this **EU alert mechanism is useful for the long-term**. The Gas Coordination Group provided feedback on this question via a questionnaire, indicating openness to keeping this mechanism, albeit dependent on the measures that would be tied to it. Some respondents indicated that both the triggering, as well as the subsequent measures, could be related to storage filling. Others mentioned that the measures tied to the alert should, like

it was in 2022, be a percentile of demand reduction, with the percentage to be tailored to the crisis at hand. Here, as was the case in 2022, regional differences should be taken into account.

In addition, while the Gas Security of Supply Regulation's Article 12(5)a already stipulates that Member States shall not unduly restrict cross-border flows of gas, the procedure that would follow may take up to a week to be concluded, meaning that in the midst of a crisis cross-border flows may unduly be halted. Therefore, Regulation (EU) 2022/2576's Article 25 introduced additional **safeguards to ensure cross-border flows**, allowing the Commission to oblige the Member State in question to modify its actions with immediate effect. The feedback received via the questionnaire circulated to the GCG sent a clear signal that most respondents consider safeguards for cross-border flows useful beyond the expiration of the temporary Regulation (EU) 2022/2576, due to either appreciation the new provisions of Article 25 or by considering those of Article 12(5) should already be respected at all times.

Key takeaways:

- Roles and responsibilities defined in the plans for different crisis levels are generally adequate.
- EU emergency level can be further defined, e.g. difference between regional and EU-wide emergency.
- An EU emergency plan to clarify roles and responsibilities between different actors is considered useful.
- The EU alert mechanism and additional safeguards for cross-border flows are considered useful provisions for the longer term.

3.7. Solidarity

Article 13 of the Gas Security of Supply Regulation lays down the requirements of the solidarity mechanism, which is a last resort mechanism in a severe gas emergency where the demand of 'solidarity protected customers' is endangered. Given that solidarity is a mechanism of last resort, it is only applicable in situations where the market fails to supply the necessary volumes needed to meet the demand of solidarity protected customers. Article 2(6) defines solidarity protected customers as households connected to the distribution grid, and under certain conditions also district heating installations and essential social services, such as hospitals.

Member States are required to free up volumes necessary to provide solidarity in case of a solidarity request from a neighbouring Member State. This may mean that the providing Member State must reduce supplies to all customers other than its solidarity protected customers, insofar as it does not create unsafe situations.

Article 13(3) clarifies, among others, that the solidarity requesting Member State must exhaust first all other market-based measures, as well as all other measures provided in its emergency plan, before submitting a solidarity request. When all requirements are met and a solidarity request is submitted to neighbouring Member States and to the Commission, the solidarity must be offered based on fair and prompt compensation to the providing Member State, stipulated in Article 13(8).

As required by Article 13(10), Member States must bilaterally agree on solidarity agreements by 1 December 2018, which include the technical, legal and financial arrangements to ensure the functioning of solidarity in practice. These solidarity agreements are a tool to operationalise solidarity in practice, but their absence does not change the legal obligation. In absence of bilateral solidarity agreements, the provisions laid out in Article 13 are still legally binding.

3.7.1. Commission Recommendation (EU) 2018/177

To facilitate the process of concluding bilateral solidarity agreements, the Commission issued Recommendation (EU) 2018/177 (hereafter ‘the Recommendation’), outlining the technical, legal and financial elements to be included in the bilateral solidarity agreements.

The Recommendation did not provide an exhaustive and prescriptive list appropriate for all Member States, as Member States must have freedom to choose solutions best suited to their national circumstance. Instead, it recommended to use a set of necessary yet optional elements, describes ways of running certain solidarity measures, and offers examples and best practices.

The Recommendation included elements on legal arrangements, such as (1) a clarification of which Member States are concerned by the solidarity obligation including those connected via a third country, (2) information to be included in the solidarity request, (3) the start and end of solidarity and (4) clarifications on roles and responsibilities. In addition, the Recommendation clarified that Member States are free to find the appropriate legal form for the solidarity agreement, provided it creates both rights and obligations between them in case solidarity is activated (so e.g. a memorandum of understanding would be insufficient).

The necessary technical arrangements were specified to enable solidarity arrangements to work in practice, e.g. via sharing of information on infrastructure capacities and theoretical volumes available for solidarity. TSOs or balancing entities could be best placed to coordinate the technical aspects of solidarity. Existing cooperation mechanisms between TSOs could even form the technical basis for solidarity, although a clear overarching framework still needed to be established to provide legal certainty.

Lastly, specific recommendations on financial arrangements for solidarity requests were offered, to ensure that solidarity is provided against an appropriate and fair compensation. The Recommendation outlines that financial arrangements are necessary to ensure an appropriate price for solidarity, i.e. it reflects the cost of providing solidarity. A mechanism for providing compensation for curtailment should offer market-based incentives, such as auctions and demand-side response. However, only the cost of providing solidarity should be covered, it cannot become a source of profit for the providing Member State or entity.

The Recommendation recognised the main components of compensation, which include:

- The price of gas, which is determined by the market price or administrative means (in case there is no functioning market price any longer) in the providing Member State.

- Transport and associated costs, e.g. regasification fees.
- Costs of release of strategic storage or storage obligations related costs, unless already reflected in the gas price which in most instances would be the case.
- Compensation for curtailment of industries if national law provides an obligation to pay damages to industry, unless this is already reflected in the price of gas.
- Cost of judicial proceedings in the providing Member State, albeit with necessary safeguards for the Member State in case of collusive behaviour between a providing Member State and entity against a requesting Member State.

Despite the range of options and recommendations offered, the progress on bilateral solidarity agreements has been insufficient to operationalise the solidarity concept during severe gas crises.

3.7.2. Bilateral solidarity agreements

Since the Gas Security of Supply Regulation entered into force, the solidarity provisions have been discussed regularly within the GCG, which intensified during 2018 and 2019 and the following years. The GCG discussions included presentations of proposed draft agreements and several workshops on specific implementation topics, e.g. a workshop on 26 September 2019.

Ultimately, 7 out of 40 solidarity agreements have been signed, namely between Austria and Germany, Denmark and Germany, Estonia and Latvia, Latvia and Lithuania, Italy and Slovenia, Estonia and Finland, and Denmark and Sweden.

In January 2020, the Commission addressed the lack of progress in letters sent to Member States and encouraged them to step up efforts to conclude the arrangements. In May 2020, the Commission sent a Letter of Formal Notice to 25 Member States for the failure to comply with the solidarity provisions. Furthermore, the Commission is carrying out regular infringement package meetings with individual Member States, where the open solidarity infringements are discussed.

As indicated by several Member States, the reasons for the lack of progress are the technical complexity, the lack of expertise allocated by the national administrations and the political difficulties in reaching an agreement, in particular as regards the financial compensation. While some Member States are more proactive than others in trying to conclude bilateral arrangements, in general the progress made by Member States is insufficient.

3.7.3. Legislative developments in 2021 and 2022

To ensure that solidarity arrangements are effective and operational and to cover for the lack of bilateral agreements, the Commission proposed in December 2021 to amend the Security of Gas Supply Regulation, via the **Hydrogen and Decarbonised Gas Package**¹⁴. In Article 67 of this proposal, the Commission proposed to introduce common solidarity rules that would be applicable in absence of a bilateral solidarity agreement, in the form of a template for solidarity arrangements

¹⁴ https://eur-lex.europa.eu/resource.html?uri=cellar:0c903f5a-5d8b-11ec-9c6c-01aa75ed71a1.0001.02/DOC_1&format=PDF

in Annex II. The Hydrogen and Decarbonised Gas Package is currently subject to interinstitutional negotiations.

Furthermore, to further strengthen solidarity measures in case of a severe gas supply shortage and to cover for the lack of bilateral solidarity agreements, on 19 December 2022, EU Ministers adopted the Solidarity Regulation (EU) 2022/2576 on enhancing solidarity during the current energy crisis. Among others, the Solidarity Regulation sets default solidarity rules applicable in absence of bilateral agreements with a maximum compensation consisting of:

1. the price of gas;
2. storage and transportation costs,
3. litigation costs due to judicial procedures for the providing Member State, and;
4. indirect costs not reflected in the price of gas, e.g. compensation for curtailment of industry, limited to 100% of the price of gas

The default rules also address a gap in the solidarity provisions of the Gas Security of Supply Regulation, namely that requesting Member States do not have to prioritise offers based on market-based measures first. In addition, the Solidarity Regulation temporarily extended the solidarity protection to critical gas volumes for electricity security of supply and temporarily extended the solidarity obligation to Member States with LNG facilities.

The Solidarity Regulation was adopted under Article 122 of the Treaty on the Functioning of the European Union (TFEU) and is therefore a temporary emergency measure that will expire at the end of 2023. This means that in case interinstitutional negotiations on the Hydrogen and Decarbonised Gas Package are not concluded before 29 December 2023, the reinforced solidarity provisions will expire, leaving a similar vulnerability as was identified during the 2022 crisis.

3.7.4. 'Dry run' exercise

To test roles and responsibilities in an EU-wide gas emergency, as well as the solidarity provisions of the Gas Security of Supply Regulation and Solidarity Regulation, the Commission conducted a joint '**dry run**' exercise with Member States and ENTSOG in December 2022.

The exercise confirmed the preparedness of Member States, the Commission and ENTSOG for an emergency, while the provisions in the Gas Security of Supply Regulation and in the Solidarity Regulation form an adequate framework for an emergency response, in particular in case of solidarity requests. However, a number of points where follow-up is required were identified.

Most participants agreed that LNG can provide additional flexibility in a crisis situation. However, LNG solidarity would require market mechanisms and intervention of the Competent Authority, provided that all market-based measures have been exhausted. The adopted legal basis for requesting and receiving LNG solidarity requires further clarification including, but not limited to, the contractual issues for diverting cargos and compensation of third parties, availability of vessels, possible mismatch of volumes between the solidarity request and the volumes in the vessel, ways of guaranteeing payments, etc.

- Solidarity provisions were recognised during the exercise as essential for security of supply if established in advance. Yet only a limited number of bilateral agreements are signed so far. The complexity of establishing fair compensation between Member States was considered a barrier to request and provide solidarity if not established in advance.
- It was identified that there is no legal basis for requesting solidarity via pipeline to a neighbouring Member State not directly connected. This possibility is not explicitly mentioned in the Gas Security of Supply Regulation, while it contains provisions for when two Member States are connected via a Third Country.
- In case a Member State receives two solidarity requests, the procedure was considered unclear. If the market does not allow to satisfy both requests, there are several options: using a pro-rata allocation, on the basis of the order of reception of the requests (first-served) or depending on the amount received as compensation.
- Several Member States foresaw complications with the changed solidarity request submission time to at least 72 hours before indicated delivery time, which was agreed in the Solidarity Regulation. Participants expressed the wish that a 24-hour period would be applicable for solidarity through pipelines, while 72 hours could still be relevant for solidarity via LNG.

Key takeaways:

- The lack of bilateral agreements confirms the need for default solidarity rules.
- The extension of solidarity provisions to LNG is assessed to provide additional flexibility and needs further clarification.
- Fair compensation for solidarity remains a point where views diverge.

4. Conclusion

This Staff Working Document provided further details to the report reviewing the functioning of the Gas Security of Supply Regulation (EU) 2017/1938.

While the Gas Security of Supply Regulation has proven to be a solid basis for the EU's security of supply architecture, a number of points are identified where future action may be required:

- I. The **GCG** has proven to be an adaptable and flexible forum, and a similar level of engagement across members is recommended. Further consideration should be given to inviting third countries supplying or transiting gas, while the overlap with the Crisis Management Group should be addressed.
- II. The **infrastructure standard** has proven to be a good incentive to develop adequate capacities and to facilitate reverse flows during the crisis in 2022, and it should remain balanced with the need to avoid the risk of creating stranded assets. Complementary standards to cover supply diversification may be needed.
- III. Member States, to a large extent, did not report major issues implementing the **supply standard**, and there may be a risk that the supply standard is easier for larger companies to uphold than for smaller undertakings. Regarding **protected customers**, further harmonisation on EU level may be needed, while the provision for reducing the non-essential consumption of protected customers is largely supported.
- IV. The **risk assessments** are crucial for the EU's preparedness, yet the current organisation of the regional **risk groups** that are tasked with creating the common risk assessments is no longer fit for purpose. An EU-wide approach with regional sensitivities is suggested, also to reduce administrative burden.
- V. The Commission's assessment of the 2019 plans showed that the substance of the **Preventive Action Plans and Emergency Plans** can be improved. In the future, (1) a projection of the phase out of Russian gas and the diversification of supply, (2) an estimate of changing gas demand composition and (3) a projection of national hydrogen strategies and the impact on gas security of supply, may be useful additions.
- VI. The **roles and responsibilities in different crisis levels** are generally adequate, but the EU emergency level may need to be better defined, e.g. via an EU emergency plan. An EU alert mechanism and additional safeguards for cross-border flows introduced in the temporary Solidarity Regulation (EU) 2022/2576 are considered useful provisions for the longer term.
- VII. On **solidarity**, the lack of bilateral agreements confirms the need for default solidarity provisions. The extension to LNG is considered necessary to provide additional flexibility, and the legal framework and role of competent authorities' intervention need further clarification. In addition, fair compensation for solidarity remains a point where views among Member States diverge.