



EUROPE'S ENERGY SECURITY AMID RUSSO-UKRAINE WAR: NAVIGATING THE FUTURE BY EMPLOYING MODIFIED SCENARIO BUILDING TECHNIQUE

Rifat Ullah Rifat

PhD Scholar and Independent Analyst

rifatrafi2303@gmail.com

Dr. Uzma Naz

Associate Professor

Head School of International Relations

Minhaj University Lahore (MUL)

Lahore- Pakistan

druzma.ir@mul.edu.pk

Abstract:

The Russo-Ukraine War has exposed the vulnerabilities of Western Europe's energy security, which has traditionally relied heavily on Russian energy supplies. This excessive dependency has resulted in energy shortages, price volatility, and inflation due to continuing disruptions. By employing the scenario-building technique, this study offers insight into the implications of the War on energy security, strategic choices, and policy considerations for stakeholders as a result of scenario-building. The scenario building technique used in this study is modified version that has been modelled by the author by totally overhauling the conventional model in practice.

The study projects potential scenarios by leveraging the modified scenarios building and development technique. The findings signify the necessity of thoroughly reevaluating Europe's stance towards the conflict, identifying looming threats, strategic adaptability regarding the diversification of energy resources and routes, and creating a collaborative European Union framework to articulate collective responses to mitigate the risks. Finally, the results are presented in four major probable future scenarios, each displaying unique challenges and strategic choices.

Concluding with geopolitical, geostrategic and geoeconomic triggers and their graduation on impact and probability indices, offer a whole sum view to the stakeholders of the Western Europe to mitigate threats to their energy security amid ongoing Russo-Ukraine War. In a nutshell, while advancing the discourse on Western Europe's energy security, the study offers a nuanced analysis and detailed strategic roadmap for the future of energy, where these scenarios underscore the critical need to pacify the conflict, anticipate the long-term risks and their mitigation, diversify the energy sources, enhance energy efficiency, formulate resilient energy policies, the



collaborative framework within the European Union, collective energy purchase and storage mechanism.

Key Words: *Russo-Ukraine War, Europe's energy security, Modified scenario Building Technique, Strategic Choices, geoeconomics, geopolitics, geostrategic.*

1. INTRODUCTION

Scenario building, also known as scenario planning, is an important strategic planning tool used to craft long-term plans, considering the uncertainties of the future and their likely impact on the likely outcomes of probable situations. It assists policymakers in envisioning the different courses of action available and the potential consequences of each, thus empowering them to anticipate and apply course corrections proactively. The techniques involve several steps, starting the process by identifying the focal issue (Schwartz, 1991, p. 45), followed by identification of key drivers and uncertainties (Schoemaker, 1995). The two most influential uncertainties qualifying on the uncertainty and impact index are identified and plotted on the scenario matrix. Through this process, four scenarios emerge based on different combinations of chosen critical uncertainties. As a litmus test, the scenarios generated should be unique and diverse, covering a wide array of possibilities, challenging the established thinking (Van der Heijden, 1996, pp. 12-14). Accordingly, the risk mitigation and application strategies are prepared for each scenario (Peterson, Cumming, & Carpenter, 2003). These scenarios are not absolute but instead fluid in nature, thus demanding continuous monitoring and updation. The external environment is continuously monitored, and accordingly, changes are made (Ringland, 2006, pp. 89-92). Correspondingly, strategy changes are implemented as course corrections.

Nonetheless, it needs to be understood that scenario building is not about predicting the future but rather providing a structured model to visualize key factors and their impacts, which can shape it. In scenario building, identifying all key drivers and uncertainties and then shortlisting the two most significant uncertainties is the most crucial step, which decides the efficacy of the scenarios crafted. Figure 1 below illustrates the whole process by defining the key ingredients, their hierarchy, role, and impact on each other.

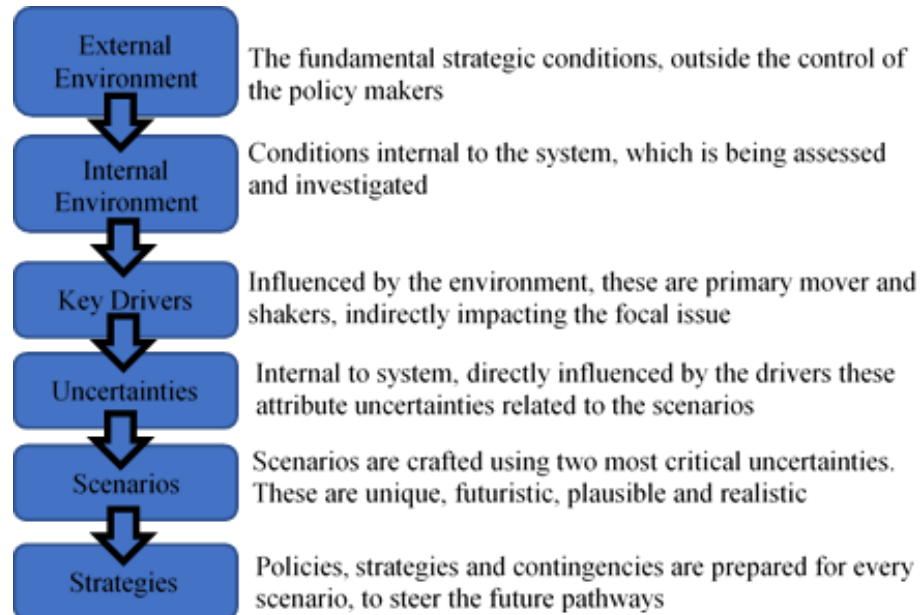


Figure-1: Key Ingredients of Scenario Building Process

2. Identification and Graduating Key Drivers

Based on the impact and uncertainty indices, the key drivers have been ranked 1-9: 1 representing the highly uncertain with the highest impact, while 9, representing the low impact and less uncertain. Figure 2 below displays the graduation matrix of all key drivers discussed below:

- **Key Driver 1: Geopolitical Alliances and Relations.** This driver is highly impactful and also highly unpredictable. Such drivers can significantly influence uncertainties and probable futures. The War can drastically influence the alliances and relations among key players, impacting the energy security of Western Europe.
- **Key Driver 2: Technological Advancements in Energy.** This driver is high-impact and highly uncertain, depending on multiple factors such as the flow of investments, regional and national policies, shelf lives of these technologies, market competition by China offering low-price solutions, efficiency vs. cost matrix, availability of CRMs, and cyber threats.

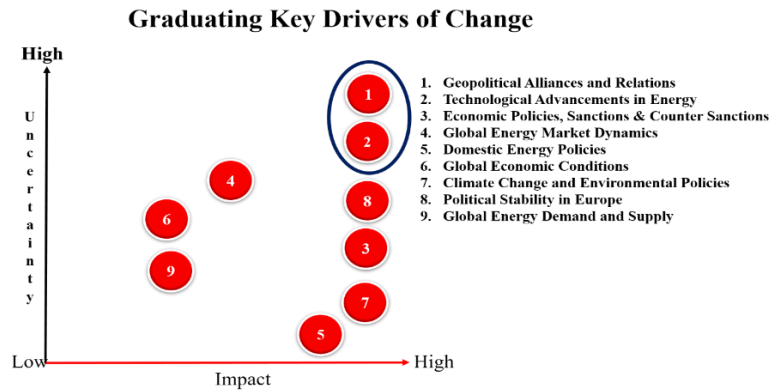


Figure-2: Graduation Matrix of All Key Drivers

- **Key Driver 3: Economic Policies, Sanctions, and Counter Sanctions.** This driver has a high impact but is moderately uncertain. Such drivers play a significant role in shaping future scenarios but are comparatively predictable and not entirely dependent on the external environment.
- **Key Driver 4: Global Energy Market Dynamics.** Diversification of sources and suppliers will moderately impact Western Europe's energy security. On the other hand, owing to the role of global powers and international organizations, there will be moderate uncertainty.
- **Key Driver 5: Domestic Energy Policies.** Domestic energy policies that are internally managed and controlled at the EU level will be more predictable and, in return, have a significant impact on Europe's energy security.
- **Key Driver 6: Global Economic Conditions/ Health.** The global recession is not in favour of any country or region, is less likely to occur, and similarly will have a relatively lesser impact.
- **Key Driver 7: Climate Change and Environmental Policies.** Though Europe is bound to follow international protocols on environmental protection, this issue is internal to the EU, which is otherwise vigorously pursuing its climate-neutral goals. Therefore, it will be more predictable with high impact.
- **Key Driver 8: Political Stability in Europe.** The EU has so far been successful in presenting a unified and cohesive front. However, due to the nature of future issues on energy security among member states and the internal socio-political dynamics of these countries, this driver has ranked high on impact and moderate on certainty.
- **Key Driver 9: Global Energy Demand and Supply.** Europe has been able to find alternative routes and suppliers. In addition to its own extensive drive for renewables, the global energy demand and supply would be low in impact and uncertainty.

3. IDENTIFICATION AND SELECTION OF TWO KEY UNCERTAINTIES.

Figure 3 below displays the graduation matrix of all (10) key uncertainties, and also figure-
outs the selection of **two** key uncertainties:

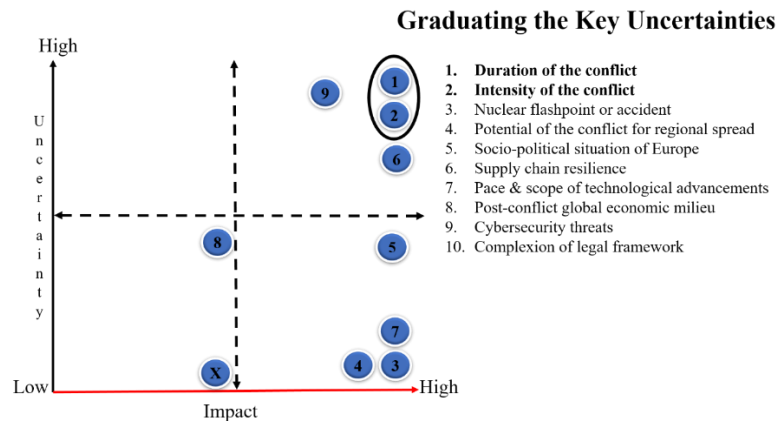


Figure-3: Graduation Matrix of All Key Uncertainties

- **Key Uncertainty-1: Duration of the Conflict (Prolonged or Short).** The duration of the Russo-Ukraine War, shortened or prolonged, will have the most significant impact on Western Europe's energy security. The extended length of the War would continue to hurt the energy supply chain, with the inherent capability to affect the price volatility of energy products.
- **Key Uncertainty-2: Intensity of the Conflict (High or Low).** The intensity of the conflict decides the nature and degree of damage. If the conflict remains low in intensity for a prolonged duration, it will continue negatively impacting the economy and energy security.
- **Key Uncertainty-3: Nuclear Flashpoint or Accident (High or Low).** The nuclear flashpoint is a remote possibility but can have disastrous effects if it materializes. It can either be a planned occurrence against the opponent or accidental, like a Chernobyl nuclear power plant episode.
- **Key Uncertainty-4: Potential of the Conflict for Regional Spread (Most Likely or Less Likely).** The spread of the Russo-Ukraine War to geographically contiguous Eastern Europe or beyond will endanger or may even make the energy supply lines redundant.
- **Key Uncertainty-5: Socio-political Situation of Europe (Stable or Volatile).** The socio-political turmoil in Western Europe, owing to any reason, shortages of energy supplies, energy price hikes, inflation, excessive immigration and refugee load, and concerns over the loss of biodiversity and natural habitat, will lead to reduced focus on energy security measures.
- **Key Uncertainty-6: Supply Chain Resilience (Robust or Fragile).** Western Europe's supply chain resilience, as an outcome of various energy initiatives, positive or negative, will impact the region's energy security drive.
- **Key Uncertainty-7: Pace and Scope of Technological Advancements (Rapid or Slow).** The slow pace and limited scope of energy-related technological advancements in Western Europe will keep Europe dependent on existing energy sources and external sources.

However, rapid breakthroughs would free Europe from outside dependencies, thereby adequately addressing its energy security vulnerabilities.

- **Key Uncertainty-8: Post-conflict Global Economic Milieu (Economic Growth or Recession).** Post-conflict economic growth would yield increased economic activity, including enhanced investments in energy infrastructure and a stabilized energy market, thereby positively impacting the energy security of Western Europe. In contrast, the post-conflict recession would seriously impinge upon the investments in the energy sector, especially the EU's drive for renewables.
- **Key Uncertainty-9: Cybersecurity Threats (High or Low).** High cybersecurity threats would make Europe's energy infrastructures vulnerable to frequent disruptions, damages, and losses, while low cybersecurity threats would reflect effective countermeasures applied, thus ensuring the robustness, reliability, and integrity of these systems.
- **Key Uncertainty-10: Complexion of Legal Framework (Proactive or Reactive).** The proactive approach to formulation and implementation of legal frameworks concerning Europe's energy security would involve an anticipatory mechanism to address issues before they arise. On the other hand, the reactive approach would cost Europe legal delays, misinterpretations, violations, and even loss of capital and resources.

4. EXPLANATION OF SCENARIO BUILDING MATRIX.

The scenario-building matrix is given in Figure 4 below. The explanation of the matrix is as follows:

- **Constant Values:** A 2x2 standard matrix has been used to plot the uncertainties, duration of the conflict on the Y axis, and the intensity of the conflict on the X axis. Both axes represent maximum and minimum ends; the duration of the conflict is prolonged and short, while the intensity of the conflict is high and low. The general convention of 4 quadrants has been followed, from Q1 (right top corner) to Q2, Q3, and Q4 (right bottom corner) in anti-clock direction. Similarly, the standard values have been used for each quarter; Q1 (+, +), Q2 (-, +), Q3 (-, -) and Q4 (+, -), where positive values denote increase, while negative values represent decrease or negative trends.

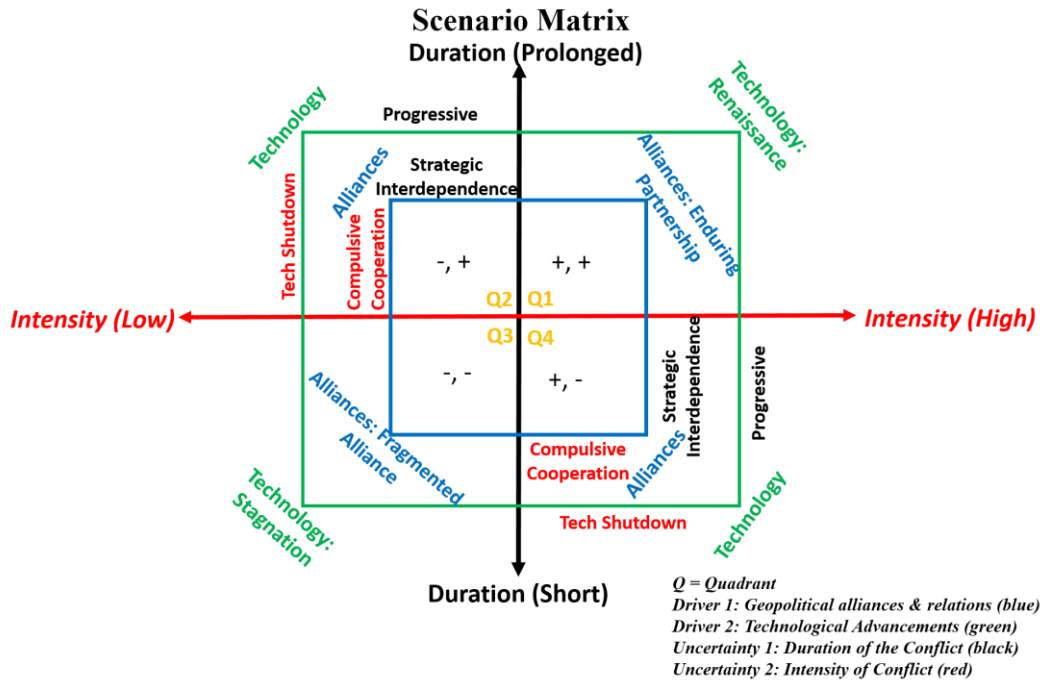


Figure-4: The Scenario-Building Matrix

- Two primary drivers chosen from the integrated SWOT-PESSTEL analysis with the highest uncertainty and impact have been drawn as blue (alliances and relations) and green (technological advancements in energy) boxes.
- Q1 and Q3 are based on similar values (+, +) and (-, -), respectively; therefore, the highest and worst shades of alliances and technological advancements have been grouped. On the other hand, Q2 and Q3 carry positive as well as negative values, (-, +) and (+, -) respectively; the 2 middle shades of these drivers have been clubbed with these, thus will have two sub-scenarios each.

5. SCENARIOS.

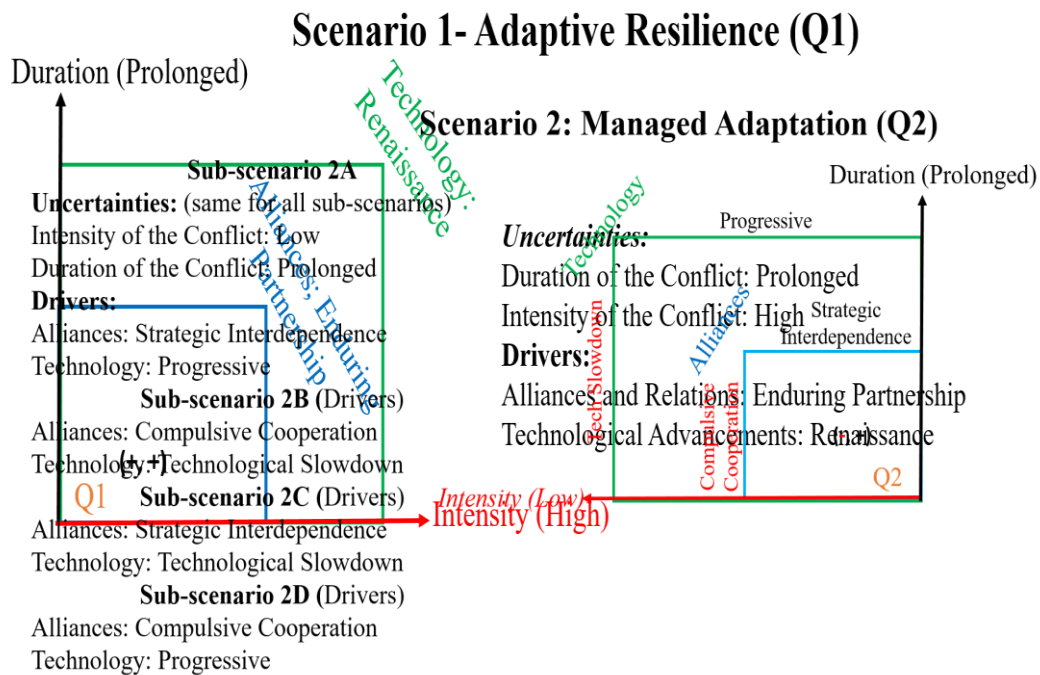
The details of different scenarios by pitching two critical drivers and two critical uncertainties are covered in the ensuing paragraphs:

5.1. Scenario 1: Adaptive Resilience (based on values in Q1)

- *Scenario Statement.* The war in Ukraine is prolonged and intense. However, despite severe external challenges, the EU internally leverages its diplomatic and technological strengths to achieve energy resilience. The Figure 5 below represents the scenario matrix of Scenario 1, which resides in 1st quarter.
- *Explanation.* The prolonged and intense Russo-Ukraine war has caused serious energy supply chain disruptions. However, the EU vigorously pursues its renewable energy drive through an accelerated technological surge to effectively minimize its need for fossil fuels. In addition, by exploiting its diplomatic influence, the EU successfully negotiates secured energy deals with alternative suppliers. It would demand primarily an Inward-out approach.
- *Strategic Recommendation.* Converting a challenge into an opportunity would require fast-tracked technological investments, enhanced and speedy technological output, consolidation of alliances within and with extra-regional partners, accelerated energy diversification, upgraded energy supply chain resilience, and formulation and practice of contingency plans.

5.2. Scenario 2: Managed Adaptation (based on values in Q2)

- *Scenario Statement.* Western Europe manages adaptation to low-intensity and prolonged conflict in Ukraine by leveraging its internal strengths in technology and geostrategic alliances to mitigate energy security risks. The Figure 6 below, defines the parameters of Scenario 2.

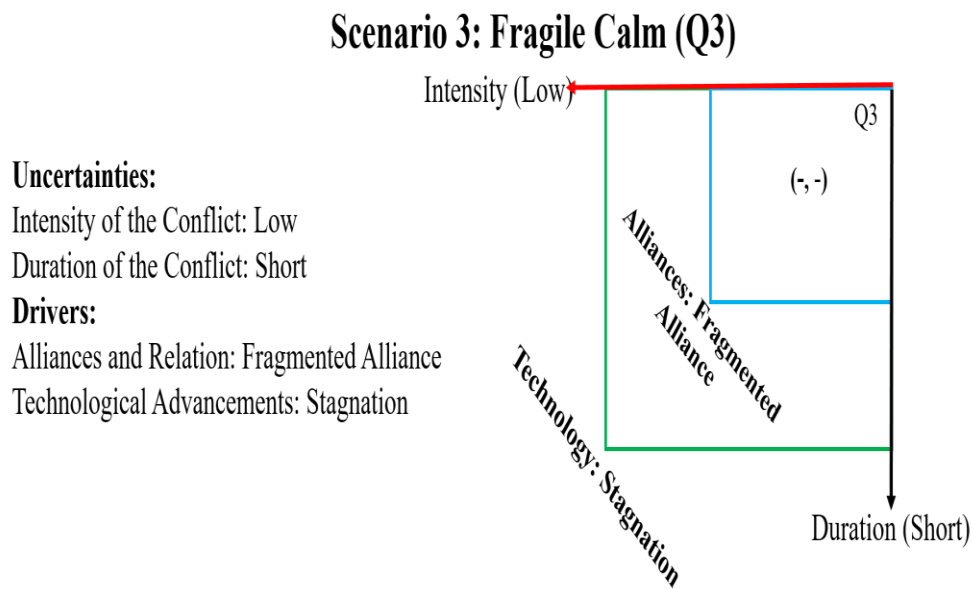


- **Explanation.** Both external factors (uncertainties) have negative trends, prolonged duration, and low-intensity conflicts that impact the energy security of Western Europe. However, the internal strengths in technological advancements and relations within and outside are capitalized to address the energy concerns. The uncertainties, duration (prolonged) and intensity (low), representing absolute positive and negative values, are constant and plotted along the Y and X axes. As in this quadrant, both values are different (-,+), and two moderate shades for each of the two key drivers, technological advancements and geostrategic alliances, have been used. In technological advancements, 'progressive' being positive is aligned with the Y axis, while 'Technological slowdown' is more towards the declining trend and is aligned with the negative X axis.
- *Similarly*, regarding geostrategic alliances, 'strategic interdependence', which has an upward trend, is aligned with the positive Y axis. In contrast, 'compulsive cooperation', which represents a declining trend, is aligned with the negative X axis. As a result, this scenario has been further divided into four sub-scenarios.
- **Sub-Scenario 2A:** Alliances- strategic interdependence and Technology-progressive. In this sub-scenario upper shade positive values from both drivers have been taken. Despite external odds, prolonged duration, and low intensity of conflict, Europe moderately exploits its technological strength to expedite the renewable energy drive and conduct meaningful negotiations and agreements with other energy partners for assured and price-competitive energy supplies. The policy directions in this regard are: firstly, increased funding for R&D as well as investments in renewables. Secondly, strike better energy deals with partners by taking advantage of its diplomatic influence.
- **Sub-Scenario 2B:** Compulsive Cooperation and Technological Slowdown. In this scenario, lower shades of both the key drivers have been picked. Out of the four scenarios in Q2, this sub-scenario poses the maximum challenge, where alliances are not voluntary but instead driven by necessity and, therefore, not dependable in the long term. Similarly, technological growth is on a declining trajectory, but it is still better than technological stagnation. The policy directions in this regard are firstly, efforts supplemented by increased investments to improve technological drive towards renewables, thus offsetting the chances of dependence on other markets. Secondly, work on improving the energy relations, inside-out.
- **Sub-Scenario 2C:** Strategic interdependence and technological slowdown. With prolonged low-intensity conflict in Ukraine, Western Europe manages to harness its geostrategic relations within Europe and abroad; however, it fails to fully maximize its technological potential, primarily due to a lack of investments, slow pace of R&D, delayed deployment of requisite infrastructures and being less competitive in the international market. In this scenario, the recommended policy directions are: firstly, a renewed focus on technological investments and developments for speedy recovery and, secondly, leveraging relations with partners like the US to accelerate its technological drive in joint ventures.

- *Sub-Section 2D: Compulsive Cooperation and Progressive Technology.* This scenario is the reverse of scenario 2C, where despite lesser cooperation among allies, the individual countries of the EU enthusiastically pursue their technological expedition. The suggested policy directions in this regard are addressing the irritants that are hurdles in the way of fostering stronger relations inside-out and maximizing the existing strengths in a unified response while minimizing the centrifugal forces. Secondly, continue pursuing technological goals, reducing production time and cost, making the products more competitive in the international market, thus reducing own dependence on external players instead of increasing their dependence on EU’s technology.

5.3. Scenario 3: Fragile Calm (based on values in Q3)

Figure 7 below represent the scenario matrix of Scenario 3.



- *Scenario Statement.* In “Fragile Calm,” the duration of the conflict is short. Following Ukraine’s surrender or backing out from claims to join EU/ NATO, which may usher in a period of Low-Intensity Conflict (LIC), the EU’s technological drive faces stagnation due to the military threat on its borders. The alliance is fractured, especially if the USA distances itself from the EU and China sides with Russia.
- *Explanation.* The abrupt end of the Ukraine war, against the liking of Europe, stemming LIC, can be highly detrimental to the EU’s geostrategic and geo-economic objectives in the region. The situation can get further aggravated if the new regime in the US abandons EU/NATO and, at the same time, China plays a more assertive role in geopolitics. This will not adversely impact the EU’s cohesion, but would also force the member states to divert their resources towards physical security more than energy security. Besides military

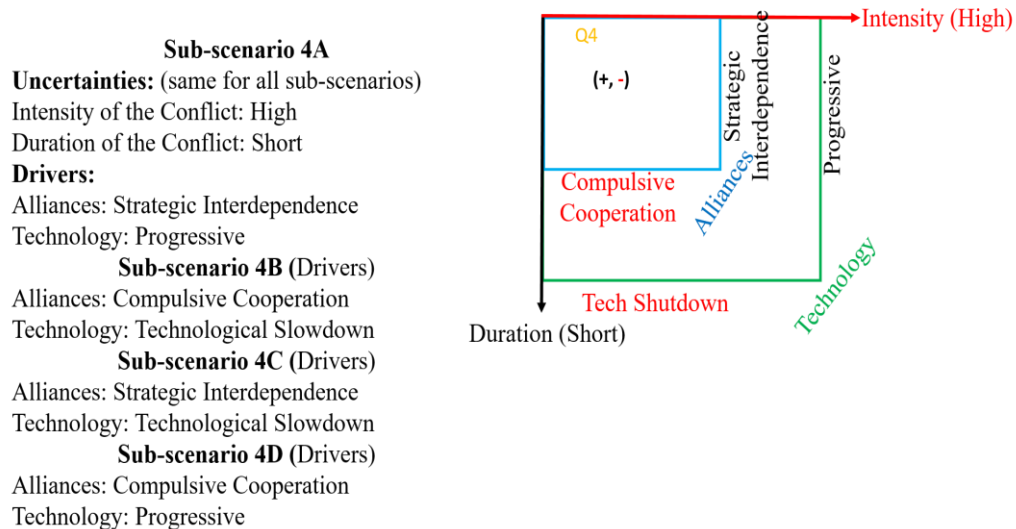
threats knocking on Eastern Europe's border, the increased influx of refugees can create a humanitarian crisis.

- *Strategic Recommendations.* If this scenario materializes, it will demand a major overhaul of the EU's policies, including its foreign and energy security policies. As a result, new geostrategic alignments will emerge, forcing Europe to recalibrate its relations and stance. Nonetheless, the moderate to softer stance towards Russia will rehabilitate the historic energy supplies, offering time for Europe to revitalize its technological base, aiming at energy independence in the future.

5.4. Scenario 4: Hot Peace (based on values in Q4)

- *Scenario Statement.* The conflict in Ukraine is intense but settles down quickly. The EU navigates through different sets of possibilities concerning its future alliances and technological pace—the external environment plays a crucial role in shaping the internal dynamics of Europe. The Figure 8 below depicts the layout of Scenario 4.

Scenario 4 – Hot Peace (Q4)



- *Explanation.* The quick resolution of the conflict can be a result of either of the contenders or both backing off from their present stance and agreeing to renegotiate. The scenario will become more plausible if the USA distances itself from EU/NATO. The 'uncertainties' are the reverse of scenario 2, while drivers remain the same. The scenario has different values; (+, -) will have multiple permutations, but the four most significant combinations have been picked, similar to scenario 2. The term 'Hot Peace', denoting the return of peace at a higher cost, is opposite to 'Cold War', which is prolonged low-intensity tensions.
- *Sub-Scenario 4A: Strategic Interdependence and Progressive Technological Outlook.* The conflict resolves quickly with heavy human and material costs, offering a chance to strive for its strategic interdependence by further cementing the EU's cohesion while focusing on

its technological prowess. The recommended policy directions in this scenario would be to first support the peace process between Russia and Ukraine by playing an active role, thereby renegotiating future security adjustments. Secondly, the focus should be on internal dynamics, including cooperation at the EU level and pursuing a collective technological drive to achieve energy independence in the mid-and long term.

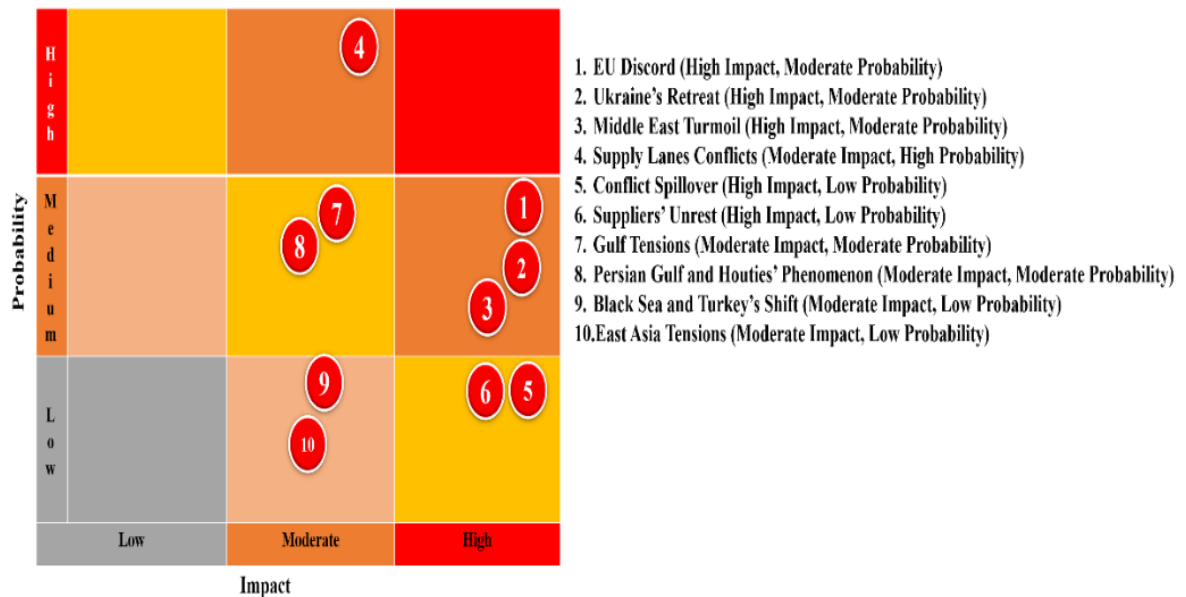
- *Sub-Scenario 4B: Compulsive Cooperation and Technological Slowdown.* Despite its short duration, the conflict in Ukraine is intense, exacerbating European challenges. Western Europe struggles to meet its energy needs due to fractured alliances primarily driven by the necessity and slow-edging technological progress. The EU is heading towards international isolation, with its traditional partners recalibrating their foreign policy options. The much-needed finances to propel technological drive are directed to address physical security concerns. In this regard, the policy directions are as follows: firstly, realign its foreign policy quickly and correctly, based on the emerging geostrategic landscape, and divorcing the wrong obsession of the past. Secondly, after negotiating the physical security concerns, invest the requisite funds in renewables, thus addressing the concerns of comprehensive security.
- *Sub-Scenario 4C: Strategic Interdependence and Technological Slowdown.* The conflict in Ukraine settles down quickly with higher costs; Europe succeeds in achieving strategic interdependence among member states and favourable support from outside. Nonetheless, the threats continue looming on borders, forcing them to divert resources needed for accelerated technological progression. Europe remains dependent on external players and suppliers for their energy supplies and support. Energy security remains at serious risk, vulnerable to exploitation in any energy crisis. The policy directions in this regard are: firstly, carefully weigh the options before going into new alliances, and secondly, pool up resources to pursue its renewables initiatives. In addition, Europe will have to establish regional energy hubs as a result of joint ventures while drastically reducing demand and consumption.
- *Sub-Scenario 4D: Compulsive Cooperation and Progressive Technology.* The necessity-driven compulsive cooperation among member states in the face of intense but short-duration conflict in Ukraine, with serious EU efforts to speed up its energy independence through accelerated technological advancements in the energy sector, especially renewables. The conflict wanes quickly but expensively, emanating no direct physical threat, thus sparing investments and focus for technological pursuits in the energy sector. The policy directions are as follows: firstly, while delinking and distancing itself from the conflicting parties, the EU should be more concerned about the emerging balance of power in the region while addressing its future security concerns. Secondly, by securing projected security adjustments, Europe to spare enhanced funding for energy independence through technological progress.

6. POTENTIAL TRIGGERS IMPACTING ENERGY SECURITY IN WESTERN EUROPE

6.1. Geopolitical Triggers:

- EU Discord (High Impact, Moderate Probability).** The dissensions within the EU, in the case of the Russo-Ukraine war, and certain countries are hit more adversely than others, though a moderate probability, but if it happens, it can have a high impact on the energy security of Western Europe. Such disagreements, if not addressed in time, especially if the US distances itself from the EU, can prove dangerous for Western Europe. The Figure 9 below underscore all the possible geopolitical triggers related to the topic and their ranking on probability and impact indices.

Ranking of Geopolitical Triggers by Impact & Probability



- Ukraine's Retreat (High Impact, Moderate Probability).** If Ukraine lets go of its aspirations to join EU/NATO, though it has a moderate probability, it can profoundly impact Western Europe's energy security. This trigger will alter the balance of power in the region. It will also have the potential to undermine the unity within Europe, where countries may look for geopolitical and geo-economic realignments. In this case, the strategic choices available to the EU would be; cooling off the political temperature in the region, pacification efforts to normalize relations with Russia abstaining NATO from further expansion towards Russia's backyard, developing and securing alternative transit routes like Southern Gas Corridor (SGC) from Azerbaijan through Caspian region to Europe and its three pipeline segments namely; The South Caucasus Pipeline (SCP) from Azerbaijan to Turkey through Georgia, The Trans- Anatolian Pipeline (TANAP) across Turkey to the Greek border, and the Trans Adriatic Pipeline (TAP) through Greece, Albania, and under the Adriatic Sea to Italy.

- ***Middle East Turmoil (High Impact, Moderate Probability).*** The Middle Eastern region is crucial for global energy supply, especially in Western Europe. If the ongoing Palestine-Israel conflict gets aggravated and involves regional players, it can severely impact the energy supply chain, thus causing price volatility. The EU, reducing its historic reliance on Russian fossil fuels, has contracted new suppliers from MENA for oil and gas imports; states like Qatar, UAE, Saudi Arabia, Algeria, and Egypt as alternative energy suppliers. The Widespread conflict in the region can endanger Western Europe's energy security. If this trigger gets actuated, Europe has the strategic choices to keep the conflict localized, work on conflict resolution, accelerate the renewables drive, maximize emergency storage, increase energy interconnectedness among member states, and reduce its dependence on energy supplies from other regions like North America.
- ***Supply Lines' Conflicts (Moderate Impact, High Probability).*** This trigger relates to disruptions seriously affecting critical energy transmission routes, pipelines, or maritime routes. Such issues can arise from the increased geopolitical tensions in regions like the Middle East, the Black Sea, and the Persian Gulf, through which vital energy supply lines pass. Western Europe depends on an intricate network of maritime energy routes and a complex network of pipelines, which renders this trigger a higher probability with moderate impact. The disruption in one segment of a pipeline or route would make the whole supply line redundant. In this regard, the tensions or blockade in the Strait of Hormuz, tensions over SGC in Eastern Europe or damage to energy infrastructures in the conflict zone are a few significant examples relating to the energy security of Western Europe. The strategic choices for Europe in this regard are enhanced security of critical pipelines, collaborative maritime security of energy supply routes, diversification of suppliers and supply lines, increased LNG import capacity, enhanced deployment of Floating Storage Regasification Units (FSRUs) as a quick fix solution to pipeline disruptions, improved strategic energy reserves capacity, effective cybersecurity mechanism, besides effective diplomatic outreach.
- ***Conflict Spillover (High Impact, Low Probability).*** This trigger denotes the spread of armed conflict in different forms, low, medium or high, extending the boundaries of the conflict zone beyond Ukraine and into Eastern Europe. The probability of this trigger getting actuated is low due to NATO's presence and international pressure, but if it occurs, it will have a high impact on the energy security of Western Europe. The spillover to Eastern Europe, Caucasus, towards the Caspian Sea or the Black Sea, besides endangering the energy supply routes, would also drag the broader geographic zone into conflict. The strategic choices for Western Europe in this regard are; proactive diplomatic engagement to quarantine the conflict zone, effective deterrence, meaningful but defensive NATO signatures and posturing, enhanced eastern cooperation and partnership, diversified energy suppliers and routes, fully operational and commissioned emergency response mechanism, and taking advantage of global energy spot markets.

- **Suppliers' Unrest (High Impact, Low Probability).** This trigger refers to the socio-political or armed conflict in key energy-producing regions, where these events can disrupt energy production and supply of oil, gas, coal or CRMs. Despite its low probability of occurrence, the impact would be severe for the energy security of Western Europe. The countries where suppliers' unrest can impact energy imports to Europe are Algeria, Egypt, Libya, Nigeria and Venezuela. The strategic choices for Europe in this regard are pacification of conflict, support for reconciliation among warring factions, international energy partnerships with other major energy-consuming and producing countries, improved strategic reserves, reduced consumption and energy efficiency, accelerated renewable energy drive, and diversification of suppliers and sources.
- **Persian Gulf and Houthies' Phenomenon (Moderate Impact, Moderate Probability).** The Persian Gulf is a region of immense importance for the global energy supply chain, being the hub of energy. However, the region has an equally volatile security situation with sleeping conflicts. Due to international stakes in the area, the probability of this trigger is moderate, with a moderate impact on the energy security of Western Europe. With the Saudi-Iran historic rivalry, the Houthi phenomenon is the latest version of rivalry, where, besides challenging Saudi Arabia, they have successfully targeted ships carrying oil and supplies for Israel. These attacks have exacerbated the regional instability mosaic, endangering the future of maritime energy transmission routes like Bab al-Mandab, which are critical for oil and gas supplies via the Suez Canal if they get aggravated. The strategic choices for Western Europe in this regard are enhanced maritime security through collaboration with the International Task Force, escort services from GCC, strengthened intelligence sharing and surveillance, support regional stability initiatives through strategic partners like the US, KSA and UAE, increased reserves for increased disruptions and emergencies, diversification of energy suppliers from alternative routes, and augmented diplomatic engagement to resolve issues.
- **Black Sea and Turkey's Shift (Moderate Impact, Low Probability).** The Black Sea region carries enormous strategic value for energy transmission, particularly gas pipelines from the Caspian region to Europe. Along this supply route and in the region, Turkey is a transit country and a regional power. Though low probability, if it materializes, it will have a moderate impact on the energy security of Western Europe. A shift in Turkey's foreign policy or geostrategic realignment, pivoting away from EU or NATO, and being frustrated by the EU's promises for membership can significantly impact the energy transit dynamics. This may affect the energy supply through TANP or exploiting critical chokepoints like the Bosphorus Strait. The strategic choices for Western Europe in this regard are strengthening the bilateral energy transit agreement with Turkey for secured supplies, working for enhanced regional cooperation, reevaluating the possibility of extension of EU/NATO membership to Turkey, and engaging in multilateral efforts for a regional security framework for the Black Sea, besides energy security measures at EU level.

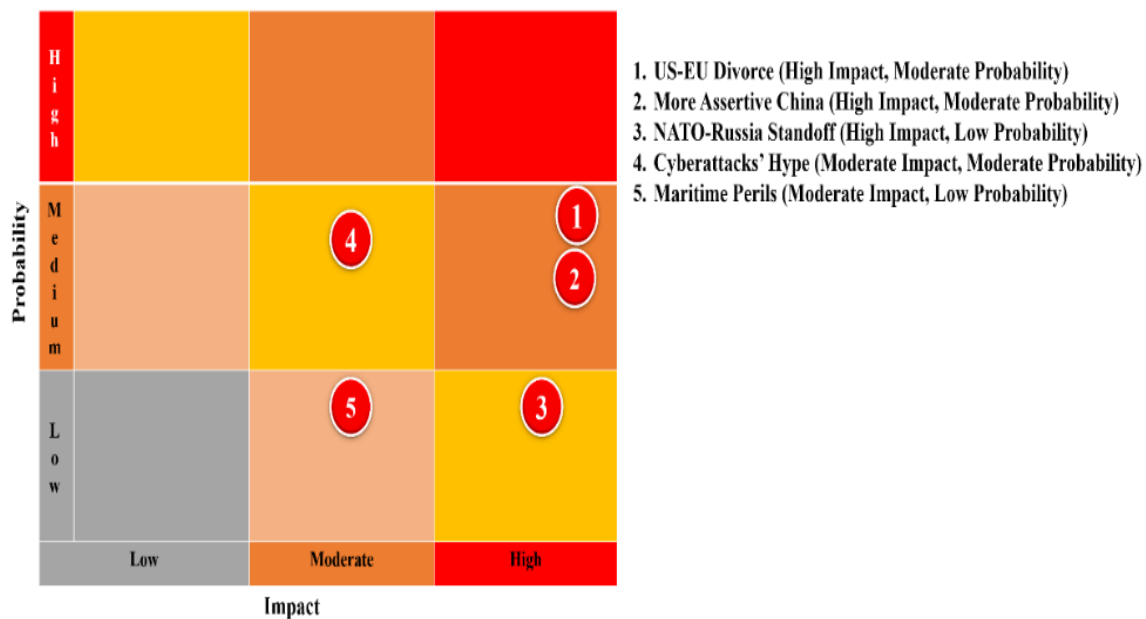
- East Asia Tensions (Moderate Impact, Low Probability).** Although the probability of this trigger getting activated is low, it will moderately impact the energy supply chain. The tensions in East Asia may involve the region's economic giants, including China, South Korea, Japan and Taiwan, with an extended impact on the global economy. The major potential flashpoints include the tensions in the South China Sea, the Taiwan issue, rivalry between China and Japan in the East China Sea over the Sankaku Islands, and a territorial dispute with South Korea in the Yellow Sea. The strategic choices in this regard are collective security arrangements with strategic partners like Japan, long-term LNG contracts with alternative suppliers, enhanced maritime security through strategic partners like the US and Japan, and pursue own renewable energy drive.

6.2. Geostrategic Triggers:

The Figure 10 below reflects the geostrategic triggers concerning energy security of Western Europe and their ranking on probability and impact indices.

- US-EU Divorce (High Impact, Moderate Probability).** With moderate possibility, the

Ranking of Geostrategic Triggers by Impact & Probability



severing of the relations between the weather geostrategic partners will have a high impact on the energy security of Western Europe. The new regime in the US after upcoming elections, if it decides to distance itself from the EU/NATO by adopting unilateral policies, will drastically affect strategic cooperation between the two on key issues: collective security, energy and trade. The US may continue offering energy exports and conditional diplomatic support, but this will raise serious concerns for the EU's future alignments,

which have followed the US strategic direction since World War II. Though low in probability, the trigger, if activated, will be the game changer to reshape the geostrategic landscape of Europe. The strategic choices in this regard available to Western Europe are a proactive approach towards reevaluation and recalibration of foreign policy, pacification and normalization of relations with Russia and other rivals of the past, resuscitating energy supplies from Russia and gradually reducing the size while pursuing diversification effort, efforts to rejuvenate transatlantic alliance, strengthen intra-EU energy collaboration through EU energy union and more meaningful regional energy partnerships, and increased investments in defense and security within Europe.

- **More Assertive China (High Impact, Moderate Probability).** In pursuit of claiming its renewed role in global politics, China adopts a mixed proactive and assertive foreign policy option, overtly displaying its regional power. Though moderate in probability, the trigger will have a high impact on the region's geostrategic landscape, especially Western Europe's energy security. The increased tensions in East Asia, the Taiwan issue, lingering territorial disputes in the South and East China Seas, enhanced realization of BRI, increased military signatures in the Indian Ocean and Asia Pacific region challenging the US supremacy, and geostrategic partnership with Iran, would significantly impact the energy supply routes, as well as EU's strategic partnership with her allies like Japan. The manifestation of this trigger would reflect power transition, which may not be in absolute terms but in a specific region- the Asia Pacific region. The space ceded by the US is immediately occupied by China, playing a more assertive role as a regional uncontested power. The strategic choices for Western Europe in this regard are renegotiating its future relations with China, enhancing diplomatic engagements, cementing regional cooperation within the EU, balancing its diversified trade and economic ties with China and transatlantic region, focusing on Eastern Mediterranean and African energy partnerships, diversification of energy sources and suppliers, with increased energy reserves and energy interconnectedness among member states.
- **NATO-Russia Standoff (High Impact, Low Probability).** Either the War in Ukraine gets intense, raising serious concerns of a humanitarian crisis, it spreading beyond Ukraine into Eastern Europe, or episodes of evidence reflecting each other's involvement in domestic affairs, including increased cyberattacks, will have the potential to pitch Russia and NATO directly in conflictual situations. The tensions escalating from minor occurrences, disproportionate responses, and exaggerated posturing, resulting in limited military conflict, can prove extremely detrimental to Europe's geostrategic and geoeconomic position, ultimately impacting its energy security. With low probability, the trigger has a high impact, given the higher stakes involved, and the consequences can be severe. The strategic choices for Western Europe if this trigger gets actuated are; pacification of situations through extensive proactive diplomatic engagement, diversification of energy supply sources, enhanced renewable energy drive leveraging her technological

advancements and strong base, and other internal measures to improve EU's internal comprehensive security apparatuses including energy security.

- **Cyberattacks' Hype (Moderate Impact, Moderate Probability).** The increased volume of attacks and their sophistication in execution make energy infrastructures extremely vulnerable to extended damages. These attacks can be state-sponsored or by hacktivist individuals or groups. In either case, the sides would blame the states, not the individuals. Though the probability of such massive attacks is moderate due to enhanced security shields, the impact on Western Europe's economy, especially the energy sector, would range from high to moderate. The heightened cybersecurity risks would drain Europe's resources and efforts. The strategic choices for Western Europe to safeguard its energy security are augmented and interconnected cyber defence systems insulating its energy infrastructures, effective surveillance, monitoring, joint reporting and incidents response mechanism, strengthening international protocols on cybersecurity and orchestrating global security alliances for joint efforts for protection and response, stringent regulatory frameworks, enhance energy resilience through backup systems and diplomatic engagement of opposing sides to avoid in attacking critical energy infrastructures.
- **Maritime Perils (Moderate Impact, Low Probability).** These denote maritime threats to the energy supply chain and routes due to increased geopolitical tensions. If blocked partially or entirely, the critical maritime chokepoints can seriously impact the global energy supply chain, including energy supplies to Western Europe. These risks can emanate from tensions among littoral states, piracy, and environmental disasters. Low in probability, fewer environmental disasters, due to serious international concerns, will have a moderate impact on Western Europe's energy security in the presence of alternative routes and suppliers. The energy supply chain of Western Europe is reliant on critical maritime choke points like the Strait of Hormuz, between the Persian Gulf and the Gulf of Oman a vital passage of oil and gas for global market including Europe, Suez Canal (between Mediterranean Sea and Red Sea in Egypt, carrying oil and gas tankers for Europe and North America), Bab al-Mandeb (on the mouth of Arabian Peninsula, with Yemen enjoying considerable influence over it, the location is vital for energy supplies from the Middle East to Suez Canal and onward to Europe, and Strait of Malacca (primarily important for supplies from Persian Gulf to Asia). In addition, certain critical pipeline chokepoints are crucial for secured and assured energy transmission to Europe. These include the Trans-Anatolian gas pipeline, the Georgia-Turkey border, Turkey's Eastern region and the Turkey-Greek border region; the Southern Gas Corridor (SGC), Azerbaijan-Georgia border and mountainous region in Georgia; Trans Adriatic Pipeline (TAP): Greek-Albanian border, Adriatic Sea crossing and Italy's landing point, TurkStream Pipeline: Black Sea crossing, Turkey's Thrace region and Balkan connections. These maritime and critical points on pipelines are crucial for the energy supply chain. the strategic choices for Western Europe in this regard are; collaboration with partners for enhanced security at these chokepoints, strengthened diplomatic engagements, proactive maritime security in unison

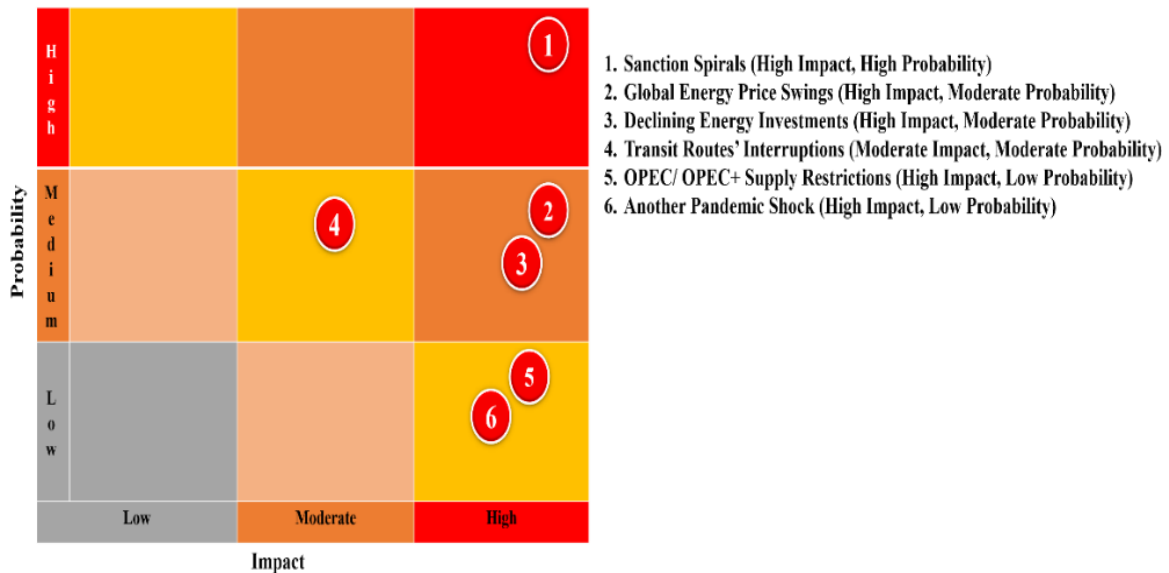
with partners like the US, diversified energy suppliers and routes, and effective contingency plans.

6.3. Goeconomic Triggers:

The Figure 11 below represents the goeconomic triggers impacting energy security of Western Europe and ranking of each on probability and impact indices.

- **Sanction Spirals (High Impact, High Probability).** The EU levied sanctions on Russia,

Ranking of Geo-economic Triggers by Impact & Probability



and in response, Russia imposed counter-sanctions on the EU, which has set the sanctions' spiral in motion. Besides economic complexities, this has seriously impacted the geostrategic landscape of the region, with serious consequences for the energy security of Western Europe in the mid to long term. The energy shortages, price hikes and inflation have already hit Europe's economy badly, while Russia has significantly adjusted itself with sanctions by finding alternative markets and buyers. With sanctions and counter-sanctions already in place, the probability of further escalation is very high, with an even higher impact. If extended more, this downward spiral can be out of control and may lead to a severe energy security crisis. The strategic choices in this regard for Western Europe are to de-escalate the situation, reevaluate the efficacy of these sanctions as these have failed to achieve intended results and continue to proactively pursue internal measures to mitigate the risks of the energy crisis.

- **Global Energy Price Swings (High Impact, Moderate Probability).** The world, in general, and Europe in particular, has witnessed unprecedented energy shortages, price hikes and energy inflation since the start of the war. Any further energy disruptions due to

geopolitical tensions in the Middle East or along any other choke point would cause a surge in global energy prices, especially in Western Europe's energy market. Such energy price swings are detrimental to markets and investors' confidence, besides increasing the cost of living for the commoner. The strategic choices in this regard are enhanced engagement of international and domestic market players to manage prices, strengthened regional cooperation through the EU Energy Union to collectively respond to price swings, cross-border interconnectedness to support each other in case of a severe energy emergency, enhanced domestic market transparency, supporting energy efficiency and demand response initiatives, long term energy contracts employing hedging strategies, fast-track renewable energy drive, and increased energy strategic reserves. Due to an effective international mechanism to check undue price volatility, the probability of this trigger is moderate, but the impact is high if it occurs.

- ***Declining Energy Investments (High Impact, Moderate Probability)***. This trigger can actuate in multiple scenarios, where public and private investments in energy, especially the renewable energy sector, face a negative trend. At government levels, the potential reasons can be economic recession, economic constraints like the budget deficit, debt levels and economic priorities like defence, higher dependency on energy imports, and challenging market competition, such as from Chinese cost-effective products. Regarding private investments, the potential reasons for political instability are regulatory uncertainty, tough regulations, high market volatility, higher capital cost and lower returns, difficult access to financing, stricter lending criteria, consumer demand and public perception, and higher R&D and transition costs. The trigger has a moderate probability but can have a high impact on the energy security of Western Europe. The government's incentives and subsidies in renewables, public-private partnerships, nuclear energy expansion, business-friendly regulatory and policy framework, incentivizing low carbon investments, joint R&D to reduce the cost, joint investment initiatives at the EU level and with strategic partners, issuing green bonds to raise capital, and establishing public-private energy investment fund.
- ***Transit Routes' Interruptions (Moderate Impact, Moderate Probability)***. The conflict escalation, sanctions' spiral, physical or cyber-attacks against energy infrastructures, insecure land and maritime transit routes, port access restrictions, trade restrictions, and sudden changes in international regulatory compliances in transit countries may become the reasons to actuate this trigger. The probability is low due to international involvement and concerns, while it can moderately impact Western Europe's energy security. In this scenario, the strategic choices available to Western Europe would be increased diplomatic engagements to resolve the issue, security of transit through host countries, route and source diversification, efforts to enhance infrastructure resilience, and energy emergency response plans.
- ***OPEC/ OPEC+ Supply Restrictions (High Impact, Low Probability)***. Repeating the Oil Crisis of 1973 episode, the oil consortium may reduce production, cut supplies to certain

countries or apply additional restrictions. Though the probability of this happening is low due to international overwatch and concerns about revenue losses incurred by the OPEC countries, it will seriously impact Western Europe's energy security if it materializes. On one side, the EU has imposed sanctions on Russian oil, and on the other hand, OPEC applies restrictions that would adversely impact the global oil market, prices and availability. The increased tensions in the Middle East and especially in Palestine, where Muslim OPEC countries unanimously decide to use oil as a weapon or the West imposing economic sanctions against more OPEC countries, can actuate this trigger. The OPEC countries can use oil supply restrictions as political leverage to negotiate a favourable outcome in a geopolitical conflict. The strategic choices available to Western Europe in this regard would be alternative oil supply agreements with non-OPEC countries like the US and Canada, short-term spot market purchases, increased petroleum strategic reserves at EU and countries' levels, effective and proactive energy diplomacy, short-term oil market stabilization mechanism like price caps and subsidies to save domestic consumers and selected industries, and enhanced crisis management framework.

- **Another Pandemic Shock (High Impact, Low Probability).** The probability of serious supply chain disruption due to a pandemic is low, and now, the world, after experiencing COVID-19, is better prepared with contingency plans in place. Nonetheless, if it happens, it will seriously impact the global energy supply chain and Western Europe's energy security, which is highly dependent on energy imports. The strategic choices in this scenario are accelerated renewable energy drive, cross-border interconnectedness to support each other in a severe energy emergency, improved conservation and energy efficiency, enhanced storage and reserves, contingency plans to mitigate risks, and maximum usage of smart grids and other automated systems.

7. CONCLUSION

A detailed sketching of scenarios related to the energy security of Western Europe amidst the Russo-Ukraine War has been conducted using the author's refined version of the scenario-building exercise. Two key drivers and uncertainties were identified by gauging their relevance on 'impact' and 'uncertainty' indices- the factors with the highest impact and uncertainty. By plotting two key uncertainties on the X and Y axes, impact on the X axis and intensity on the Y axis with two extreme shades on either end, the basic structure of scenarios was crafted based on a traditional scenario-building framework. Then, by employing my refined version of the scenario-building matrix, the two most critical drivers with four shades of impact levels were plotted to see how these drivers and uncertainties interact, resulting in the development of a number of plausible scenarios. Subsequently, critical potential triggers from geopolitical, geostrategic and geoeconomic domains were identified, followed by proposing strategic choices available to Western Europe in response to these triggers. This wholesome exercise analyzes the complete context threadbare and offers potential scenarios and strategic choices for each, which can be of value to all policymakers in Europe.



References

- Peterson, G. D., Cumming, G. S., & Carpenter, S. R. (2003, April). Scenario Planning: A Tool for Conservation in an Uncertain World. *Conservation Biology*, 17(2), 358-366. Retrieved June 18, 2024, from <https://ui.adsabs.harvard.edu/abs/2003ConBi..17..358P/abstract>
- Ringland, G. (2006). *Scenario Planning: Managing for the Future* (2nd ed.). Chichester, UK: John Wiley.
- Schoemaker, P. J. (1995, January 15). Scenario Planning: A Tool for Strategic Thinking. *Sloan Management Review*, 36(2), 25-40. Retrieved June 18, 2024, from https://www.researchgate.net/publication/220042263_Scenario_Planning_A_Tool_for_Strategic_Thinking
- Schwartz, P. (1991). *The Art of the Long View*. New York. New York: Doubleday.
- Van der Heijden, K. (1996). *Scenarios: The Art of Strategic Conversation*. New York: John Wiley & Sons.