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The Search for a New 3E

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It is well known that the principle of Japan's energy policy is to simultaneously achieve the 3Es: energy security, economic efficiency, and environmental compatibility. Since the Fukushima Daiichi accident, safety has been added to the policy and so the term 3E+S is now commonly referred. However, history shows that achieving the 3Es simultaneously is not easy, and that in crises, other E(s) have often been sacrificed in order to achieve one E. After the oil crises and the Fukushima accident, a stable supply of oil and electricity (energy security) became the priority, forcing Japan to accept high fossil fuel cost and sacrifice economic efficiency. In addition, as in the case of Japan today where fossil fuels account for a very high share of the power mix, placing a high priority on energy security increases CO_2 emissions and sacrifices environmental compatibility. Meanwhile, using cheaper energy in the name of economic efficiency often increases fossil fuel consumption, raising the environmental burden. If climate change countermeasures (environmental compatibility) are given top priority, energy prices will inevitably rise and economic efficiency will be sacrificed. Therefore, it is difficult to achieve the 3Es simultaneously, at least in a crisis, and so they should be viewed as a kind of guiding principle.

The war in Ukraine has put energy security in jeopardy, and the balance of the 3Es is collapsed once again. Many countries have raised the priority of energy security in their energy policies, at the expense of environmental compatibility and economic efficiency. Even the EU, which had been pushing so hard to its decarbonization goal, has been forced to rely more on coal- and oil-fired power plants in order to prioritize energy security. Recognizing the difficulty of achieving the 3Es simultaneously, Japan should focus on building a new balance of the 3Es. In particular, there is a need for a long-term vision on how to address climate change, which is currently being sacrificed.

Many initiatives are under way to decarbonize the energy sector, including energy conservation, renewable energy, hydrogen and ammonia, nuclear power, CCUS, and carbon pricing. However, it has become clear that energy security becomes the priority during an energy crisis such as at present, and that there is no guarantee that energy crises will not occur in the future. Thus, decarbonizing the

energy sector is likely to be more difficult than previously thought. On the other hand, decarbonization and climate measures are not limited to the energy sector. There are also many initiatives in the non-energy sectors, such as green refrigerants, DAC, food waste reduction, forest protection and restoration, and solar radiation modification. The effectiveness, costs, and feasibility of these initiatives will vary, but some, such as green refrigerants and DAC, are showing progress. In addition, with disasters related to climate change becoming more frequent, so-called adaptation efforts, such as strengthening disaster countermeasures, are increasingly important. Given the critical energy security situation, it is necessary to accelerate these non-energy sector and adaptation efforts. This does not mean that energy security should be prioritized and decarbonization sidelined. Rather, it means that the 3Es should be rebalanced by promoting more realistic and comprehensive climate change measures, by fully implementing efforts in the non-energy sectors and for adaptation, while working to decarbonize the energy sector to the maximum extent possible.

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