

Chapter 4

Key Findings and Next Steps

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CHAPTER 4

Key Findings and Next Steps

1. Key Findings

At the 2nd Working Group (WG) meeting, the members discussed the key findings of the analysis based on the calculation results for the Energy Security Index (ESI).

1. While there are limitations in obtaining data, it is possible to develop an index which quantitatively indicates the energy security situation. For example, in the case of the indicator for the diversity of energy sources, ERIA averages show a trend toward the concentrated use of a specific energy source across the years. In particular, this finding is consistent with the expanded use of coal for power generation.
2. Energy security is comprised of a variety of elements. Furthermore, the perspective from which a country is assessed varies greatly depending on the situation that the country is in. There is thus no single absolutely correct indicator, and it is important to assess multiple perspectives through a combination of several indicators.
3. With the cooperation of WG members, it was possible to access data which are difficult to obtain through publicly available statistics, such as statistics issued by the International Energy Authority (IEA) and BP, as well as to confirm and review data. This was one of the major outcomes of this study.
4. Calculating the index using the data obtained yielded ESI values which were widely distributed and which reflected the diversity of the countries.
5. For example, in the case of the self-sufficiency ratio, it was possible to quantitatively confirm that despite having no domestic resources, a country could improve its self-sufficiency ratio by expanding its use of nuclear energy, and as a result, could improve its performance in terms of ESI. It is important

that such policies underpinning the changes in indicator performance are analyzed.

6. For country analyses, the ESI has made it possible to quantitatively assess how the energy security situation has evolved over each decade.
7. Some indicators have a trade-off relationship, and it may therefore be difficult to improve performances across all indicators simultaneously. This is observed, for example, between self-sufficiency and the diversity of energy source.
8. Country situations, as illustrated by the ESI, vary depending on the country's environment, including resource endowment, and the extent of energy demand increases. Nevertheless, a number of common trends were identified:
 - Many of the resource-rich countries experienced decreases in their self-sufficiency ratio or R/P ratio. It is thought that new resource development in these countries has not caught up with the speed of increase in energy demand.
 - With respect to the supply of primary energy and the diversity of energy sources, few countries performed well compared to the OECD average. It was observed, for example, that while increasing the use of domestic resources, such as coal and hydropower, is favorable for improving the self-sufficiency ratio, this also limits the diversification of energy sources.
 - While access to commercial energy is improving, this is simultaneously causing a further increase in energy demand, including electricity demand.
 - Although efficiency in energy utilization is improving in many countries, some countries still have low efficiency compared with the OECD averages and there remains room for improvement.

2. Next Steps

At the 2nd WG meeting, members discussed the next steps of the study.

With the development of the ESI, it has become possible to quantitatively assess the energy security situation. However, this in itself is not the final objective of the study.

In the next step (tentatively called Step 2), policies underlying the changes in the indicators will be analyzed, based on the values of the developed and calculated index. Separate analyses will be conducted for each country, examining what policies caused the changes in the indicators, in other words, changes in the energy security situation.

Through this analysis work, the WG will extract policies that have the potential of changing the energy security situation for the better. In addition, key points will be extracted in order to maximize the effectiveness of these policies. Of course, the policy of one country cannot necessarily be applied as is in another country and be fully effective. Nonetheless, the WG aims to provide this information as material to help policymakers review the policy options available for the enhancement of energy security.

In terms of the way forward (tentatively called Step 3), while the study has so far assessed and analyzed past performance, in the next step it will look ahead into the future energy security situation. Step 2 will shed light on the linkages between ESI and policies. In Step 3, utilizing the outcomes from Step 2, the study will estimate what changes to policies, taken in the future, will result in changes to the energy security indicators (the energy security situation) moving forward. This work will allow policymakers to quantitatively assess the linkages between the policy options available in their country and the impact of these options on future energy security. The analysis findings will thus serve as reference information for the selection of better policies.

References

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