

Energy security in dynamic geopolitics: Where is it heading?

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Emerging global energy landscape

- Unprecedented impact of COVID-19 pandemic
- Emerging over-supply and lower energy prices
- Impacts of US “Shale Revolution”
- Asia as a gravity center of world energy demand
- Energy Geopolitics revisited
- Climate change and air pollution as emerging risks
- Expectation for advanced and innovative technology

Viewpoint of world energy market under pandemic



- **Pandemic peak out? Second/third waves?**
- **World economy: how bad can we go?**
- **Future of “lockdowns”?**
- **Supply responses to low prices/over supply?**
- **Demand responses to low prices?**
- **Impacts of low price on investment, industry and producing countries?**
- **Structural changes caused by the pandemic?**

Impact on industry and producing countries

- Demand reduction/low price caused big damages to IOC/NOC
- Investment seriously reduced
- Duration of pandemic may cause further damages
- Economic deterioration worsened in major producing countries
- COVID-19 expansion makes things more difficult
- Risk of political and social instability?

- Current over-supply may be a source of future instability

Structural problems: Key Questions

- **Oil demand structurally restrained? To what extent?**
- **Electrification accelerated? What that mean?**
- **Relation between “Post Corona” recovery and decarbonization?**
- **Impact of “Post Corona” geopolitics on global energy market?**
- **Impact on “Energy Transition” and “Technology supremacy” ?**

“4D challenges” in the electricity sector

- **Decarbonization : How to tackle with ambitious GHG reduction**
- **Deregulation : Response to changes caused by market reform/liberalization**
- **Digitalization : Electricity as increasingly important in digital society, but...**
- **Decentralization : Need to respond to shift to decentralized society**
- **Complicated relations among “4D challenges”, including “trade-off” relations**
- **At the same time, price affordability and supply stability/security in electricity continue to be a top priority**
- **Large scale increase in VRE, implications of market reform, cyber security, etc. have emerged as new risks/threats to electricity security of supply**

Issues for decarbonization and “Green deal”

- **Low/Decarbonization efforts continue to be an important agenda**
- **But, decarbonization agenda may be “relativized” because of the increase in the importance of recovery, survival and security**
 - **Decarbonization trend can differ greatly by region/country in the world**
- **Effectiveness of Green investment on recovery and employment?**
 - **Attentions paid to the result of “EU model”**
- **Promotion of Green investment (RE, hydrogen, etc.) requires strong policy support**
 - **Importance of technology development, cost reduction and cost sharing**

Energy market with higher geopolitical tensions

- **Priority shift from “economic efficiency” to security and geopolitics**
- **Cost-up caused by the shift tolerated**
- **Revision of global supply chain based on “cost minimum concept”**
- **“Me-first” and priority on “alliance” and “sphere of influence”**
- **Downward pressure on global economy(deviation from economic optimum)**
- **Global energy demand to be reduced**
- **Differed patterns of energy demand trend by region/country**
- **Enhanced efforts to energy security (self-sufficiency, diversification, strategic alliance)**
- **Possibility of “relativization” of decarbonization and diversified energy option based on availability/accessibility (nuclear, hydrogen, fossil fuels with CCS, etc.)**