



Analysis of the Threats of Strategic Surprises in the Form of National Energy Crisis

Budi Yulianto¹ and Chandra Wijaya²

¹National Resilience Studies, Strategic Intelligence Study Program, Universitas Indonesia

²Department of Administrative Science, Faculty of Social and Political Sciences, Universitas Indonesia

Corresponding author: Chandra Wijaya, Department of Administrative Science, Faculty of Social and Political Sciences, Universitas Indonesia

Abstract: The objectives of research are: 1.To identify aspects, components and indicators of National Energy Security (KEN); 2. To formulate KEN Index; 3. To measure the current and the future KEN Index (2015, 2020, 2025); 4. To identify potential strategic surprises in the form of national energy crisis and 5. To analyze what kind of intelligence solutions need to be done by the government. Theories used are: Grabo's Warning Intelligence theory, Handel's Strategic Surprise theory, and also using several analysis' tools, such as: trend analysis, pattern analysis, and anticipatory analysis. For energy resilience calculation, it adopted aspects from Asia Pacific Energy Research Center (APEREC) with component and indicator references from World Energy Council, Energy Resources Technology Development Center-BPPT, and The National Resilience Institute (LEMHANAS). The result of this research are : 1.KEN Index consists of 4 aspects, 9 components and 15 indicators; 2. KEN Index formula is as follow: $KEN = 0.39 \text{ (Availability)} + 0.23 \text{ (Affordability)} + 0.23 \text{ (Accessibility)} + 0.15 \text{ (Acceptability)}$; 3.Current KEN condition is in susceptible condition, similarly in 2015,2020 and 2025; 4.Indonesia has a potential occurrence of National Energy Crisis' Strategic Surprising Attack, which can cause economic, social and political instability, which in the end will offend Indonesia's security stability; and 5. Intelligence solutions to anticipate strategic surprising attack not to happen are based on 4 scenarios.

Keywords: Strategic Element of Surprise, Energy Crisis, National Energy Security Index.

Introduction

The complexity of modern human living systems require at least three main supports on basic needs: food, water, and energy. These aspects of human basic needs make up an interrelated strategic needs and, indeed, the three are increasingly limited in number.

As we ride into the third millennium, the struggle of energy resources between some countries will sustain and get more intense. Yusciantoro (2000:312) explained that several countries utilize various strength to gain access and, eventually, possess energy resources, especially oil. A number of geopolitical crisis in scores of regions stem from political and economic factors in the struggle of energy resources domination in order to meet industrial, transportation, and household needs or simply to fulfill the interests of the concerned ethnic groups.

In *Hot, Flat, Crowded* (Friedman: 2009), it was explained how both energy security and oil and gas economy play an important role in the constellation of the politics of the states, regions, and even the world. Currently, a group of oil-producing countries plays a significant role in the lobbying of political decisions in many other countries. The strength of the relation between energy economy, represented by crude oil, and politics spawned **the first law of petro politics**, which stated that “the crude oil price highly influence the speed of democracy adoption and international peace” (Friedman: 2006). This law also applies in Indonesia where the rise and fall of a government is extremely related with energy stability as well as other basic needs.

When a country experience an insufficient or troubled energy supply, its primary weaponry defense system (or *alutsista*, in Bahasa Indonesia) become paralyzed. As a result, the national defense of the country become weaker and, in the end, the country may collapse. Indeed, in his state of union address on January 28, 2003, the US President George W. Bush stated, “*Our third goal is to promote energy independence for our country, while dramatically improving the environment...*”.

Based on the aforementioned condition, Yusgiantoro (2000) mentioned that it is high time Indonesia considered an energy survival strategy much like what other countries in the Asia Pacific region did, for example:

1. Singapore.

By utilizing primary energy imports strategy and exporting its excessive energy consumption in final energy form;

2. Australia.

By utilizing coal and oil net exporter strategy as well as the development of sunlight-based new and renewable energy resources technology;

3. Japan.

With its high-level of energy consumption, this country build several energy reservations facilities and energy shipments infrastructure to approach energy resources with 100-days buffer stock policy strategy; and

4. The United States of America

By applying the security guarantee strategy towards oil-exporting countries and building buffer stock bunkers to accommodate crude oil when the prices are low.

Indonesia, in the context of energy development, must build a strategy in order to strengthen its national energy security to guarantee its security in the energy aspect. Naturally, this could only be achieved by relying on existing energy resources alone, but also by gaining access to world energy resources (Yusgiantoro, 2000: 313).

Based on the fact above, it is obvious that the energy subsidy burden the government must bear is increasingly magnified with crude oil prices that tend to rise and the escalation of energy consumption in Indonesia. If the government, as the policy-maker, could not anticipate this then it is possible that the **“Strategic Surprises in the form of National Energy Crisis in Indonesia in the Future”** will happen as a result of the inability of the State Budget to cover the ever-increasing energy subsidies.

Several aspects that the author wished to be examined in this research paper are:

1. To identify the aspects, components, and indicators of the National Energy Security (KEN);
2. To formulate the precise KEN Index;
3. To measure the both the current level of KEN and in the future (2015, 2020, 2025);
4. To identify the potential of strategic surprises in the form of national energy crisis, which could interfere political, economic, and national security stability;
- and 5. To analyze what intelligent solutions the government should perform in order to anticipate the occurrence of strategic surprises in the form of national energy crisis.

Literature Review

In relation to this research paper, several theories and approach methods that would be used are:

- Both *warning intelligence* and *strategic surprise* concept as the basis of intelligence theory in formulating the right dimensions and indicators to be utilized as *early warning system* tools in detecting the potential strategic surprises in the form of National Energy Crisis.

1. *Warning Intelligence* from Cynthia Grabo

Warning intelligence is a process that is used by intelligence community to detect the indicators of potential threats while there is some time to counter the aforementioned attempt (Grabo: 2010).

2. *Strategic Surprise* from Michael I Handel

The problem of *strategic surprises* is a problem that should always be anticipated by any intelligence agencies. Many of the failures of intelligence agencies in finding out strategic surprises are caused by wrong initial thoughts, ethnocentrism, and incorrect perceptions.

- Analysis Techniques

The analysis techniques namely trend analysis, pattern analysis, and anticipatory

analysis to conduct the analysis of the possibility of strategic surprises in the form of energy crisis in Indonesia in the future in the complex global environment situation.

- Energy Security Model

1. APERC Model

Asia Pacific Energy Research Centre (APERC) is a research institution that is affiliated with the Energy Economy Institute in Japan. The Energy Security and Sustainable Development Framework commissioned by APERC consists of four As, namely *Availability*, *Accessibility*, *Affordability* and *Acceptability*.

2. World Energy Council

The Sustainable Energy Index Ranking is viewed through 3 dimensions, which are:

- a. Energy Security: The effectiveness of the primary energy supply management from domestic resources and imports, energy infrastructure reliability, and the ability of energy companies to participate in meeting demands.
- b. Energy equity: The accessibility and the affordability of energy supply.
- c. Environmental Sustainability: the energy supply achievement and the energy efficiency in the aspect of demand and the development of energy supply from low-carbon and renewable power resources and others.

3. The Center of Energy Resources Technology Development-Agency for the Assessment and Application of Technology/BPPT

The energy security condition based on the analysis of the energy security calculation, which is done based on the dominant elements that have been taken into account as follows: *availability*, *affordability*, *accessibility*, and *acceptability*

4. The National Resilience Institute (Lemhanas)

- a. *Availability*: 1). The utilization of new and renewable energy resources on electric power generation; 2). The influence of energy export towards energy security; 3). The influence of import towards energy security; and 4). The role

of energy consumption diversification.

- b. *Affordability*: 1). Energy consumption per capita; and 2). Community economy improvement.
- c. *Accessibility*: 1). Technology development; and 2). Strategic reserves enhancement.
- d. *Acceptability*: 1). Global environment; and 2). Regional/local environment.

Methodology

The research method that is used in this paper is descriptive method with quantitative approach. This research paper attempts to give recommendations from the intelligent aspects about the future energy security condition in Indonesia. The result of this research paper may be applied as an early warning system in viewing the critical condition of energy in Indonesia and the solution scenario.

The sampling technique used in this research paper is *purposive sampling*. The sampling grouping is as follows:

	Group		
	Policy-maker	Businesses	Academics
Criteria	Governmental agencies and the House of Representatives Energy Commission	State-Owned Enterprises (BUMN) and local and foreign private companies involved in energy industry	Academicians from both state and private universities who specialize in mining and metallurgical engineering, physics, and economy.

In drafting the energy security aspects, this paper refers to APERC, which are *availability, affordability, accessibility, and acceptability*. Whereas in the configuration of the components and the indicators, this paper uses references from the World Energy Council, BPPT, and Lemhanas as well as linked to the data availability. Specifically, for the components and the indicators, this research paper also give some space so that

respondents and sources could add, reduce, or revise the components and the indicators provided.

The energy security indicator used in this research paper is based on the calculated dominant variables, as follow:

a *Availability.*

The *availability* aspect indicate the availability of energy resources, whether fossil-based energy resources such as crude oil, natural gas, and coal, or new and renewable energy resources such as sunlight-based energy, wind-based energy, waste-based energy, micro hydro power, and others (Nurrohim, 2012 : 81). The availability aspect is associated with:

- The utilization of new and renewable energy resources on national power plants. This is important because the utilization of fossil-based energy is relatively expensive and its reserves is limited, whereas new and renewable energy resources is the energy resources that should be utilized (BPPT, 2012 : 97).
- The energy export contribution toward energy security. In essence, energy export is important to gain foreign exchange. However, energy export could also contribute to the decline of national energy reserves/potential (BPPT, 2012 : 98).
- The contribution of energy import toward energy security. Energy import is basically important to meet energy demand that cannot be covered by domestic production alone. However, this could also weaken energy security (BPPT, 2012 : 98).
- The energy diversification on energy consumption. Diversification could enhance the flexibility of energy supply that will increase the level of energy security (BPPT, 2012: 98).

b *Affordability* or the ability of the society to utilize energy.

The *affordability* aspect indicate the affordability (price) or the consumer's ability to

pay the required energy price to build energy infrastructure and energy management (Nurrohim, 2012, 81). The affordability aspect is related with:

- Energy consumption per capita. This indicate the economic growth and the community ability in the context of energy provision (BPPT, 2012: 98). The energy consumption involves electricity consumption per capita and final energy consumption per capita.
- The community economy ability. This as an illustration of how the consumers pay for energy with its economic price.

c *Accessibility* or achievement ability or goods facilitation. The *accessibility* aspect indicate the convenience of energy users to access energy resources in the final form of energy (Nurrohim, 2012, 81). The *accessibility* aspect is related with:

- Distribution capacity, which consists of the capacity of LNG refineries, receiving terminals, the capacity of LNG plants, and the capacity of power plants (BPPT, 2012: 99).
- Strategic reserves. The improvement of strategic reserves aims to increase the quality of energy supply and ensuring the continuity of energy supply (BPPT, 2012: 99).

d *Acceptability* or public acceptance.

The *acceptability* aspect indicates the acceptance or whether the provided energy can be received to the public (Nurrohim, 2012, 81). The *acceptability* aspect is related with:

- Environment. In line with the government program, the program that would be supported is the program with little to no waste of gas emission/pollution, among others are the utilization of new and renewable energy resources and environmental adaptation, which are the activities that could increase the resilience or be able to adapt with environmental damage (BPPT, 2012: 99).

Results and Discussions

1. The Aspects, Components, and Indicators of Energy Security

In drafting the energy security aspects, this research paper uses references from APERC, which are: *availability, affordability, accessibility* and *acceptability*. This is in line with the definition of the National Energy Policy that was formulated by the National Energy Council: *energy security is a condition where both the energy supply and the public access to energy with affordable price in long-term is guaranteed while keep paying attention to the environment.*

Based on the results of compiling and analyzing the distributed questionnaire that was responded by 39 respondents, which consists of 17 respondents from the policy-makers (National Energy Council, the Energy and Mineral Resources Ministry's Oil and Gas Directorate, Electricity Directorate, Mining Directorate, and New Renewable Energy Resources Directorate, the National Development Planning Board/Bappenas, BPPT, and the House of Representatives), 7 respondents from business sector (Pertamina, PLN, PGN, Chevron, Medco Energi, FFM Corp, Multibuana), and 15 respondents from the academic sector (University of Indonesia, Bandung Technology Institute, SepuluhNopember Technology Institute, Lampung University, and Bina Nusantara University) then the components and indicators of the energy security that could be used as basic calculation are as follow:

AVAILABILITY ASPECT

COMPONENT	INDICATOR
The Utilization of New and Renewable Energy Resources in Power Plants	New and Renewable Energy-based Electricity Production/Electricity Production in Total
The Impact of Energy Export Toward Energy Security	Energy Export/Domestic Energy Supply
The Impact of Energy Import Toward Energy Security (Supply Vulnerability)	Energy Import/Domestic Energy Supply
Energy Diversification Index (Supply Flexibility)	Primary Energy Diversification Index
	Final Energy Diversification Index
	Electricity Diversification Index

AFFORDABILITY ASPECT

COMPONENT	INDICATOR
Energy Consumption Per Capita	Electricity Consumption/Population
	Final Energy Consumption/Population
Community Economy Ability	GDP/Population

ACCESSIBILITY ASPECT

COMPONENT	INDICATOR
Distribution Capacity	Oil Refineries Capacity
	LNG Receiving Terminal
	LNG Refineries Capacity
	Power Plant Capacity
Strategic Reserves	Months Capacity

ACCEPTABILITY ASPECT

COMPONENT	INDICATOR
Environmental and Social Acceptance	CO2 Emission Number

2. The National Energy Security Index Formulation

After determining the aspects, components, and the indicators of the Energy Security, now it is necessary to know the scale for the formulation. This scale is obtained based on compiling and analyzing the questionnaire and the results of the formulation of **model formulation of Indonesia KEN**, which is as follows:

$$\text{National Energy Security} = 0.39 (\text{Availability}) + 0.23 (\text{Affordability}) + 0.23 (\text{Accessibility}) + 0.15 (\text{Acceptability})$$

$$Av = 0.388 (0.293PLEBT + 0.277PE + 0.206PI + 0.075IDEP + 0.075IDTL + 0.075KLK)$$

$$Af = 0.232 (0.251KLK + 0.251KEK + 0.499PK)$$

$$Ac = 0.229 (0.144KKM + 0.144KRTLNG + 0.144KKLNG + 0.144KKPL + 0.425CF)$$

$$Acc = 0.151 (1.000ECO2)$$

Notes:

KE	= Energy Security	IDTL	= Electricity Diversification Index
Av	= Availability	KLK	= Electricity Consumption / Population
Af	= Affordability	KEK	= Final Energy Consumption / Population
Ac	= Accessibility	PK	= GDP/Capita
Acc	= Acceptability	KKM	= Oil Refineries Capacity
PLEBT	= New and Renewable Energy-based Electricity Production / Electricity Production in Total	KRTLNG	= LNG Receiving Terminal Capacity
PE	= Energy Export / Energy Production	KKLNG	= Kilang LNG Refineries Capacity
PI	= Energy Import / Energy Production	KKPL	= Power Plant Refineries Capacity
IDEP	= Primary Energy Diversification Index	CS	= Strategic Reserves
IDEF	= Final Energy Diversification Index	ECO2	= CO2 Emission

3. National Energy Security Level

Based on the calculation of the data from the determined indicators, the KEN value in 2011, 2015, 2020, and 2025 is as follows:

a. Scenario 1 Calculation

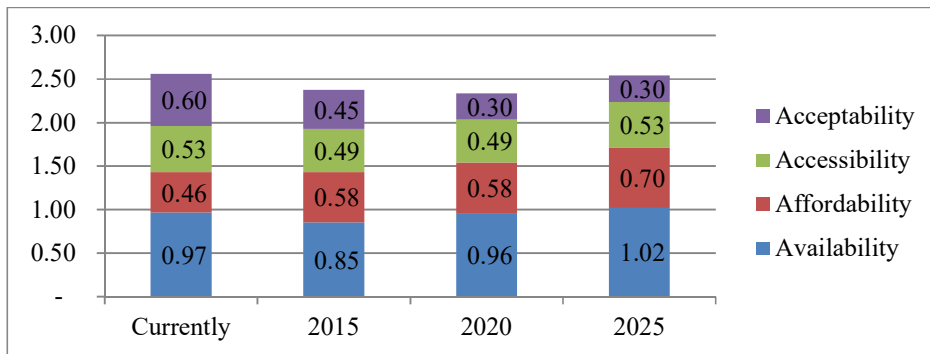
The scenario 1 calculation is under the assumptions that there is no change in the infrastructure and GDP per capita is based on the calculation on www.ers.usda.gov. The results may be viewed on the table and illustration below:

Table 1. The National Energy Security Calculation (Scenario 1)

	Currently	2015	2020	2025
Availability	0.97	0.85	0.96	1.02
Affordability	0.35	0.35	0.35	0.46
Accessibility	0.53	0.49	0.39	0.39
Acceptability	0.60	0.45	0.30	0.30
Energy Security	2.44	2.15	2.00	2.18
Status	Vulnerable	Vulnerable	Vulnerable	Vulnerable

Note: "Currently" uses 2011 data

Figure 1. The National Energy Security (Scenario 1)



Note: "Currently" uses 2011 data

The assessment criteria is:

Extremely vulnerable	Vulnerable	Moderate	Secure	Very secure
$1.0 < x \leq 1.8$	$1.8 < x \leq 2.6$	$2.6 < x \leq 3.4$	$3.4 < x \leq 4.2$	$4.2 < x \leq 5.0$

b. Scenario 2 Calculation

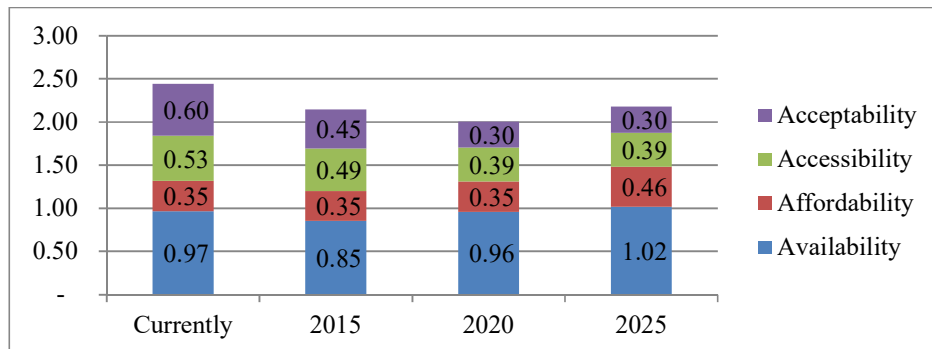
The scenario calculation is under the assumptions that there is some changes in the infrastructure and the GDP per capita is using the calculation of the National Economy Committee. The results may be viewed on the table and illustration below:

Table 2. The National Energy Security Calculation (Scenario 2)

	Currently	2015	2020	2025
Availability	0.97	0.85	0.96	1.02
Affordability	0.46	0.58	0.58	0.70
Accessibility	0.53	0.49	0.49	0.53
Acceptability	0.60	0.45	0.30	0.30
Energy Security	2.56	2.38	2.33	2.54
Status	Vulnerable	Vulnerable	Vulnerable	Vulnerable

Note: "Currently" uses 2011 data

Figure 2. The National Energy Security Calculation (Scenario 2)



Note: "Currently" uses 2011 data

Based on the results of the national energy calculation, it is obvious that, by using the data from the Energy and Mineral Resources Ministry, BPPT, the National Economy Committee, World Bank, USDA, and other publications, the energy security of Indonesia is already in **"yellow light" stage or tend to be vulnerable**. This situation will continue

to decline although, in 2025 the situation will be slightly attractive even when it will still be in the vulnerable category. In 2025, the situation will be slightly improved because the government has already done some efforts in diversification, conservation, infrastructure development, energy exports limitation, and income per capita improvement.

4. The Application of the Intelligence Analysis Technique in Identifying the Potential of Strategic Surprises in the form of National Energy Crisis

Based on the results of the aforementioned KEN index research, it can be seen that there is a tendency for KEN to be even more vulnerable from 2011 to 2025 period. If the Indonesian government did nothing to anticipate this tendency from the very beginning, this will create a potential of strategic surprises caused by the occurrence of national energy crisis. In order to analyze the potential of the strategic surprises in the form of national energy crisis even further, the author utilize two advanced analysis techniques in order to strengthen the conclusion results of this research as mentioned above, which is as follows:

a. The Application of Trend Analysis Technique

The trend analysis technique is used in order to estimate or forecasting the strategic surprises that may occur because of the future national energy crisis in Indonesia. The analysis of four kinds of trend that influence energy utilization in a specific period of time may be elaborated as follows:

1) Human/Social Trend

In the human or social trend analysis, the author will look into the dynamics of population growth in Indonesia, the composition of the population and the pattern of energy consumption in Indonesia from time to time.

a) Population Growth

The population in Indonesia increased from 238.5 million people in 2010 to 305.6

million people in 2035. The impact of this population growth is that the energy demand in Indonesia also increase during the period.

b) Population Composition

The composition of the Indonesian population, in the future, will be dominated by those in their productive age, which in consequence will increase energy demand.

c) Energy Consumption Pattern

The pattern of the world's energy consumption shows that there is an upward trend in energy demand in the future, which is also applied to Indonesia. The increasing consumption pattern in Indonesia is relatively fast-paced especially in the industrial sector, transportation, and commercial sector.

d) Income per Capita Development

The economic growth in Indonesia in the past 10 years, macro-economically speaking, continue to increase. The average of the real economic growth rate in 2000 – 2013 period is at 3.62 percent per year. By using the US\$ as the exchange rate, the income per capita in Indonesia in 2006 is US\$1,660 and, in 2011, increased quite significantly to US\$3,550. With the increasing of income per capita, the buying power of Indonesian people is also increased and, as a result, will increase the national energy consumption.

2) *Functional Trends*

In the functional trends analysis, the author will look into the tendency of fossil-based energy reserves in Indonesia in the future: whether the archipelago will discover new exploration location or whether the reserves tend to be limited. In addition, the author will also look into the illustration of energy infrastructure in Indonesia.

a) Fossil-based Energy Reserves in Indonesia

As of 2011, the crude oil reserves in Indonesia is only sufficient for the next 23 years under the assumption that the Southeast Asia's biggest economy's production is 329 million barrels per year. Whereas the natural gas reserves in Indonesia is only sufficient for the next 50 years and 80 years for coal reserves.

b) Energy Infrastructure in Indonesia

The development of energy infrastructure in Indonesia is relatively under the expectations in the past several years, with the exception of power plants.

1) Oil Refineries

Oil refineries in Indonesia are spread in 10 points with 1,157.10 MBSD capacity with the majority ownership belonged to Pertamina. Indonesia has not built another oil refinery after building the one it erected early in the 1990s.

2) LNG Refineries

LNG refineries in Indonesia spread in 3 points, namely Arun, Bontang, and Tangguh. The capacity of the three refineries is 42.09 MMTPA. In the future, Indonesia plans to build three addition LNG refineries. The first one is DonggiSenoro LNG Refinery, which will be built in 2014 with gas supply projected at 335 MMSFCD. The second one is the Masela LNG refinery, which will be built in 2016, with 4.5 MMTPA capacity. The third one is the LNG Natuna refinery, which is planned to be built in 2022.

3) Power Plants

There are 13 types of power plants in Indonesia with the total of installed capacity of 39,898.96 MW in 2011. Coal-fired power plants have the biggest installed capacity. In the 2013-2022 period, the additional power plants are expected to bring 59,515 MW of additional installed capacity.

3). *Technical Trends*

In the technical trends analysis, the author will look into the trend of technical progresses in various fields, which is reflected in the trend of the amount of users that naturally will influence the energy consumption needs both directly and indirectly.

a) Technological Advances in Equipment

The advances in technology in the field of transportation, electronic, communication, and information technology cause more and more users. All of

these equipment and devices, naturally, will need a huge amount of energy in their operations although recently these devices have started to utilize energy-saving technology.

b) Technological Advances in New and Renewable Energy Resources

The utilization of technology is required in order to extend the possibilities of new energy resources. The substantial new and renewable energy resources in Indonesia may be utilized in order to cut the dependency on fossil-based energy.

4). *Organizational Trends*

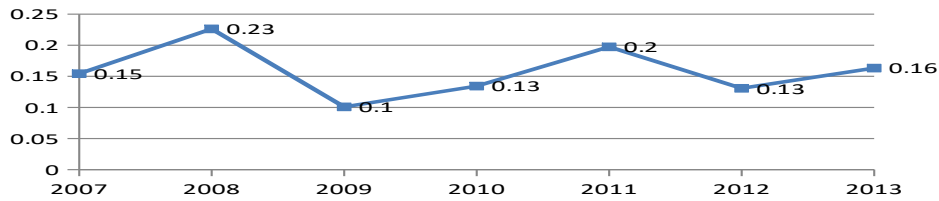
In the organizational trends analysis, the author will look into the energy consumption growth trend in a country that is in the developmental stage and in the industrialization stage. Based on the S-curve Energy Demand Growth, it can be seen that Indonesia is in the category of Development Phase Country (Industrialization). Countries in the developmental phase and conducting industrialization tend to need bigger amount of energy compared to other countries.

After conducting analysis on the four aforementioned types of trends, then it can be concluded that:

1. In the future, Indonesia will experience a surge of energy demand thanks to demography factor, the growth of the utilization of technical goods, economic and developmental growth, and industrialization needs.
2. The crude oil production in Indonesia will continue to decline in the future, in line with the decreasing of new reserves that could be explored. Meanwhile, to this date, the government is yet to develop alternative energy resources in earnest. As a result, the new and renewable energy resources in Indonesia is less significant in fulfilling the increasing energy demand.
3. In accordance with the law of supply and demand, if the Indonesian government did not anticipate the current trend, there is a possibility of strategic surprise where energy prices become uncontrollable due to the inability of the government to

subsidize. The illustration of the Indonesian energy subsidies compared with state expenditure is as follows:

Figure 3. The Ratio of Energy Subsidy and State Expenditure in 2007 – 2013



	2007	2008	2009	2010	2011	2012	2013
Energy Subsidy (billion Rp)	116,865.90	223,013.20	94,585.90	139,952.90	255,608.80	202,353.20	274,743.00

Source: The Finance Ministry of Republic of Indonesia – State Budget principal data, 2013

b. The Application of Pattern Analysis Technique

The pattern analysis technique is used by the author to analyze the pattern of strategic surprises that were occurred in various countries, including Indonesia, which stem from energy crisis or other crisis in the past. This could be used to estimate the possibilities of what strategic surprises that might occur in the future if the same pattern in the past happen in the future.

By utilizing the analysis technique, the author will take the example of the fall of the New Order regime under President Soeharto, which was caused by multidimensional crisis at the time, of which the chronology will be elaborated (Mustopo, et.al, 2007) as follows:

The fall of the Soeharto government on May 21, 1998, followed by the demand of democracy in every aspects as well as the demand to take a firm action toward human rights violators has been the focus of the changes in Indonesia. This situation demand Indonesia as a nation to strive in order to overcome its troubled history in the main flow

of the big change that continue to roll through reformation agenda.

There were several factors that cause the fall of the New Order regime under the leadership of Soeharto, which are:

1. **Economy and Monetary Crisis**

The economy and monetary crisis, which stem from the vulnerability of the foundation of Indonesia, in addition to the many corruption, collusion, and nepotism practices as well as monopoly. On July 1, 1997, the rupiah exchange rate fell from Rp.2,575.00 to Rp.2,603.00 per US dollar. In December 1997, the value of the rupiah against the US dollar reached Rp.5,000.00 per dollar, and in March 1998, it reached Rp.16,000.00 per US dollar.

2. **Political Crisis**

Basically, according to the law (*de jure*), the sovereignty of the people should be represented by the People's Consultative Assembly (locally known as MPR). However, in reality (*de facto*), the members of the assembly were already been arranged so that most of them were elected based on nepotism. With that, there was an increasing demand to throw the president at the time as well as holding a new election as soon as possible.

3. **The Crisis of Trust**

Under the New Order regime, the practices of corruption, collusion, and nepotism both under the table and blatant emerged. This caused the anti-trust movement from the people toward the government as well as the distrust of other countries toward Indonesia. The public rallies escalated quickly after the "**The Government announce the fuel price increases**" as well as the rising of transportation cost on May 4, 1998. The culmination occurred on May 12, 1998, at the Trisakti University in Jakarta, where four university students who were rallied against the government were shot dead.

4. **Social Crisis**

There were two types of aspirations in the society, one that supported Soeharto and

one that demanded Soeharto to resign from presidency. The group that demanded President Soeharto to resign was represented by college students with the ideals of reform.

5. Law Crisis

There was a lot of injustices in the law enforcement under the New Order regime. Those who demanded reformation wished for a fair law enforcement to all parties in accordance with the principle of constitutional state.

After analyzing the forms or the patterns of strategic surprises based on the impact of energy crisis toward the end of the aforementioned New Order regime, it can be concluded that:

1. There was a form of a pattern where the fall of the ruling government in Indonesia was caused by multidimensional crisis, which are the economy and monetary crisis, political crisis, the crisis of trust, social crisis, and law crisis.
2. There was an increase of fuel prices up to 71 percent because the government at the time could no longer provide energy subsidies. The fuel price hike was enough to burden the low-class society because it could create multiplier effect. The impact on the inflation could still be felt until July 1998 where the average inflation per month was at 6.77 percent.
3. The surge of fuel price hike was also influential toward the business sector, which, as a result, influenced the operations and thus would result in the increasing number of unemployment and economic growth stagnancy.
4. The fuel price hike would be felt by the whole society as well as influencing every aspect of life, which triggered public rallies by the university students and other mass organizations. As a result, the country experienced instability in the economic, social, and political aspect.
5. The impact of energy crisis was so enormous that, if it was occurred at the same time

with other multidimensional crisis, could result in the fall of a regime. However, even if it stands alone, the impact will also be significant toward the economic, social, and political instability, which in the end will interfere with the security of the nation, just like what happened in France in 1974-1975.

6. This form or pattern might occur again in the future if the current government or the future government could not deal with energy crisis.

5. The Intelligence Solution in order to Anticipate Strategic Surprises in the form of National Energy Crisis

In order to conduct an anticipation as an intelligence solution, the author would use the third advanced analysis technique, which is the *anticipatory analysis*. The anticipatory analysis focuses on how to think should the strategic surprises occur and what are the impacts it could create as well as what steps should be taken in order to develop the hypothesis on what goals to be achieved, strategy, motivation, decision-making, ability, the creation of required condition, and a number of activities to be done in order to anticipate so that the strategic surprises would not occur or occur again.

Below is the intelligence solution in order to prevent strategic surprises in the form of national energy crisis in Indonesia in the future:

No	Problem	Indications of the problem	Recommended Solutions
1	Insufficient supply	<ul style="list-style-type: none"> Fossil-based energy reserves per 2011: crude oil (23 years), natural gas (50 years), coal (80 years). 	<ul style="list-style-type: none"> The utilization of new and renewable energy resources both extensively and intensively. The development of new oil wells that

No	Problem	Indications of the problem	Recommended Solutions
		<ul style="list-style-type: none"> • Most of the types of power plants still concentrate on fossil-based energy, especially coals. • Increasing energy imports • The high level of energy exports • Energy consumption and electricity consumption per capita are still low • The scarcity of fuels in some regions • Frequent power failure 	<p>should be concentrated for domestic demand.</p> <ul style="list-style-type: none"> • Energy exports limitation. • The economization of energy utilization. • Incentives for electric devices that both energy-saving and environment-friendly. • It is important to develop buffer reserves and energy strategic reserves. Currently, Indonesia only possess operational reserves, which is only last for 20-25 days.
2	The government is unable to fund energy subsidy	<ul style="list-style-type: none"> • The ratio of energy subsidy against state expenditure is increasing 	<ul style="list-style-type: none"> • Reducing energy subsidies • Socialization of the reduction of energy subsidies • The reduction of the 88-octane gasoline (locally known as Premium) gradually • Compensation toward the poor people • Cutting energy subsidies and divert it to the development infrastructure: oil refineries, LNG refineries, gas pipelines, power plants, and transmissions. • The development of the shipping industry focusing on the preparation of the national coal vessel
3	The enactment of the market mechanism in fuel prices and electricity rates	<ul style="list-style-type: none"> • The increasing subsidies reflect the ever-growing gap between market price and domestic market if it is assumed that the volume is relatively the same. 	<ul style="list-style-type: none"> • The application of the prices based on market mechanism is extended and it is obliged for those who drive their own luxurious cars or cars with large CC. • The application of the price based on market mechanism is extended to

No	Problem	Indications of the problem	Recommended Solutions
			luxurious houses or need higher watt.
4	The political process in the House of Representatives is deadlock while it is urgent to make a decision	<ul style="list-style-type: none"> Based on several experiences, it is obvious that the joint decisions between the government and the House of Representatives frequently take prolonged time. 	<ul style="list-style-type: none"> The formulation of a master plan on the development and the management of energy in order to maintain the national energy security in Indonesia. The formulation of a deal (if it is possible, in the form of Law) between the government and the House of Representatives on detailed criteria on determining fuel prices and electricity rates

Conclusion

Based on the analysis and the discussion above, it can be concluded that:

1. The National Energy Security Index consists of 4 aspects, 9 components, and 15 indicators.
2. The formulation of the National Energy Security Index is as follows:

$$\text{NATIONAL ENERGY SECURITY} = 0.39 (\text{Availability}) + 0.23 (\text{Affordability}) + 0.23 (\text{Accessibility}) + 0.15 (\text{Acceptability})$$
3. Based on the result of the calculation of the National Energy Security Index, the current condition of national energy security is in a VULNERABLE condition. So was based on the data projection results for 2015, 2020, and 2025, it was found that, based on the calculation, the condition of the energy security in the future (2015, 2020, and 2025) is also VULNERABLE.
4. Based on the trend analysis and pattern analysis, it was found that Indonesia has the potential of experiencing strategic surprises thanks to the increasing demand of energy but with limited available supply, which among other things was examined

from the availability of fossil-based energy, which is more and more limited, and the low availability of the infrastructure. This cause an instability in the economic, social, and political condition which, in the end, will impact on the security stability of a nation.

5. There were several intelligence solution as an anticipation so that the strategic surprises could not occur based on 4 scenarios, namely if: first, the supply does not meet the demand; second, the government cannot afford to fund energy subsidies; third, the implementation of market mechanism for fuel prices and electricity rates; and fourth, deadlock during the political process in the House of Representatives.

Recommendation

Based on the discussion and the conclusion above, the author could raise several recommendations in the hope that the government would take, namely: 1. It is important to have a policy about KEN that is comprehensive and the formulation involves every stakeholders in the energy sector so that in the future the country may experience a strong energy security; 2. It is important to limit the oversized energy exports; 3. It is important to develop the potential of new and renewable energy resources in order to create the development of energy mix that is balanced as well as to minimize environmental damage; 4. It is important for the government to have a plan on the management and the utilization of energy in Indonesia for a long-term and this plan must be carried out with a full, long-term commitment; 5. The government must gradually reduce the energy subsidies and divert it to the development of energy infrastructure; 6. The government should apply market mechanism in determining fuel prices and electricity rates; and 7. Both the communication and the coordination between the government and the House of Representatives should be in a healthy condition by drafting a Law that is required in order to maintain and improving the national energy security.

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Program Kajian Strategik Ketahanan Nasional, Fakultas Pascasarjana Universitas Indonesia

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