PREFACE

Energy security is a widely debated and greatly controversial concept, and people have too many different understandings and interpretations of it. A British energy scholar once joked that if five people are talking about energy, there may be more than six definitions of the concept of energy security. Over the past decade working on the study of issues related to energy security, with the deepening of understandings about this field and the expansion of relevant knowledge, more and more I felt that it is difficult to say exactly what the security of energy is. It involves many areas like technology, price, market, economy, politics, diplomacy, environment, climate, etc. Perhaps we can list several relatively classic definitions of energy security, like uninterrupted and stable energy supply at reasonable prices. However, in many cases, it is found that these concepts could not answer various questions in different fields. I feel that listing or using a concept is not very difficult, whereas, to explain it clearly and properly, especially to make readers or listeners exactly understand is not an easy job.

As difficult as it is to answer what the world is and why we live, it is impossible to get a standardized answer, because everyone has their own understandings and experience. The world is big, complex, and fast-changing, even though we eagerly want to know what it is, it is hard to make it. We can generally put forward some concepts and give some basic, partial, and temporary judgments, but from a broader perspective and in the face of fast changes, it often seems too feeble and futile.

In order to avoid getting stuck in agnosticism, we may not know exactly what the world is, but we can explain and judge what the world is not in reference to our own experience, studying, and understanding. It is just like when we do not know what we want, we can list what we do not want, and may be what is left is what we want. When we gradually know what the world or something is not, we may be getting closer and closer to what the world or something is. In most cases, knowing what something is not and what we do not want should be much easier than judging what something is and what we want.

On the issues of energy security, there are diverse views over the years, especially on China's energy security. In many years of research, I am increasingly convinced that it is difficult to find out what energy security

is, but, it may be more reliable and convincible to figure out what energy security is not, especially what China's energy security is not. For example, the main problem we face in energy resources is not the depletion of resources, or it can be said that the world energy resources will not really deplete. Compared with what it was in the past, at present it is less and less likely for countries to start wars for getting oil, energy, or other resources. The main reason for America to invade Iraq was not for oil; the high price of oil is not the key reason for the recession of world economy or economic crisis; China's energy investment overseas or the "Going out" of China's energy and resource is not for "Getting back"; the Malacca Dilemma or the transportation security of China's energy is not as serious as what people think, etc.

Another implication of "what energy security is not" is that energy security or energy shortage is not a serious and unsolvable problem for many countries. That energy is important does not mean that energy supply and energy security is the top priority, nor does it mean that countries will fight fiercely for energy or start a war. The strategic attribute of energy acting as a political weapon will continue for a period of time, and its interaction with geopolitics will occur now and then, such as the European–Russian energy game triggered by the Ukraine crisis in 2014. But in general, energy and resources playing as the attribute of commodity comes first, and what finally decides the market is supply and demand, especially from the long-term perspective, it is the effective demand that decides the market. Maintaining the stability of energy and resource markets (global, regional, or domestic), strengthening national governance and market improvement, and promoting resource interdependence and international cooperation are the fundamental ways to solve resource issues and promote sustainable development of human race.

In terms of "what the energy security is not," we need to start from understanding and interpreting the myth related to energy security. As far as the myths rich in human history, misreading and misunderstanding are important parts of life and are also the unavoidable cost of social progress. Natural resources such as energy and minerals permeate all aspects of people's life and are closely related to the development of human society, especially, oil that is often called "blood of industry" or strategic resources, which exerts the greatest influence on people's lives and is the most controversial resource in the world. Because of its importance, universality, and complexity, there are more and representative myths concerning energy in the world. Just like what Leonardo Mangeri remarked

that the energy sector is the largest, most interesting, most dynamic, and most important industry on this planet, but it is also most likely to be misunderstood; "Black Gold" brings myths and vain hopes, fears and delusions of reality, as well as those unwise policies that undermine the minds of people [1].

The oil crisis in the 1970s led to an increasing concern for oil and energy security over the next decade. After the mid of 1980s, as oil prices fell, oil gradually returned to the attribute of commodities, and people were less interested in it. But since the end of the 20th century, the prices of most energy and resource commodities, such as oil, rose sharply and fluctuated violently, the international community fell into the most intense energy insecurity since the oil crisis in the 1970s [2]. "Black Gold" returned to the center of the world stage with great power and impetus, which shocked all critics and once again it became something that is as worrying and painful as it was in the past. Worries about the depletion of oil reserves came back, along with the concern about the demise of human civilization, the fear of the opposition between Islamic countries and the world, and the worry about threats to acquire the world's largest oil reservoir [3].

The world is unpredictable to some extent, but to predict is a human instinct and an important demand. Because the Earth's future is unknowable, the sense of uncertainty and panic has always accompanying human beings. Human's fear of the doom of the world and the expectation of Noah's ark has never stopped, just as the myth and story of destruction and salvation will continue forever. There are many false propositions in the analysis of the future of human beings, such as what the world will be "if one day there is no…" or "if the Chinese consume material resources as Americans do…," but in fact, many of them did not happen or will not happen.

As far as the energy sector is concerned, many efforts trying to predict the future of oil and energy, like most of the historical predictions, came to a wrong or even absurd conclusion, but various forecasts still come into being one after another. Today, pseudoscience, ignoring the lesson from history once again, denies the objective logic of reality, and makes use of language of disaster and terror to spread fear [3]. The deviation in the understanding of oil market by the amateur observers' aggravated people's exaggerating of the oil cycle and overreaction. Hopefully, it is only by referring to complex technical elements, research documents, and elusive indicators, as well as profound understanding of history,

economics, and geopolitics, that the problem of oil can be correctly understood. Leonardo Mangeri states that only when the analysis is as thick as at least a book, can we make clear the oil industry's profundity and complexity, but in fact, I am afraid that several books are not enough to tell clearly, especially to the nonprofessionals.

The public perception mainly comes from the media, but the simplistic media language tends to lead it to extreme. In the absence of sufficient factual information, catastrophism and conspiracy theory easily become popular when people encounter many unexplained phenomena. The emergence of many variables makes the oil and gas industries more complex and boring, Mangeri pointed out, but, in contrast, the overall description is much simpler and more interesting. People like to seek sensational effect, and fiction and distortion are the basis of many industry reviews, like being possessed by the evil spirits that are not afraid of drive magic. They appear as soon as the first signal of the crisis emerges and work together to exacerbate the crisis. What's worse is that since 2000, a group of fast food—like books have begun to enter the market, all of which are making use of horrific and ultra-shallow future energy predictions to endlessly stir up people's hysterical fear of oil [4].

The shadow of the oil crisis and the oil embargo in the 1970s affected almost all discussions on oil and energy, making people often look at oil or energy issues through colored glasses. Mangeri stressed that these shocks and embargos are mainly the result of public psychological distortions, stemming from the lack of information about the actual supply of oil, namely "the classic case of buyers' panic." People also often seek evidences from the disastrous predictions spread by media and think-tanks, the American government's mis-interventionism policy, and many other factors. For those who are very vulnerable to these pessimistic arguments as a result of shortage of knowledge, they should be constantly informed that the actual insufficiency of oil is limited to only a small degree, and even those rare shocks are only incidences in history, which have little effect [5].

In his book *The Road to Energy Independence*, Robert Bryce points out that Americans' enthusiasm for energy independence shows that in most discussions about energy issues, rationality is secondary. Once it comes to oil, people's brains cannot help but have a short circuit, and synapses are starting to get out of order. The United States is in urgent needs to reduce the elapse of the IQ score and restore intelligence and needs to learn about energy. Every year, the cost of discovering, refining, transporting, and consuming energy by global residents reaches up to

$500,000 trillion, while most Americans' energy knowledge is limited to only a few words collected from news reports [6].

In the first oil crisis in 1973, the Minister of Energy of France spoke on television about how France responded to the energy crisis, but when a reporter asked him what energy is, he did not know how to answer and had to say something else instead [7]. Han Xiaoping, Chief Information Officer of China5e.com, points out that in China, the biggest challenge about energy is the lack of energy knowledge for most officials, especially the lack of comprehensive, in-depth, and correct understanding of energy issues. As a result, those officials often blindly formulate some incorrect or unrealistic energy policies, and what turns out was just the opposite of their wish.

We live in the age of information explosion, and massive information, especially many diametrically opposed information, often make the common people lack of common sense feel confused in front of some events, and the intentional or unintentional misleading by some media further aggravates the spread of some irrational and erroneous messages. Mangeri stresses that all the predictions that oil will run out on the planet, though not confirmed, are magnified by the media, like a wave of surge, washing away all the opposing opinions, which makes the discussions about oil dominated by elusive and parrot-learned articles, and people would feel relaxed only when they discuss the limits of oil [8].

Nowadays, energy is a hot topic, and energy security becomes a basket into which people are anxious to put all the questions. In many cases, whether in Europe and America or in China, energy security is a good shield and umbrella with highly political correctness, allowing no space for objection. Robin Mills points out that Freud once held a view that any object that enters your dream is related to sex organs and there are no other possibilities. At present many people attribute all local wars to energy-related issues [9].

In many cases, facts are distorted by the intervention of factors such as interests and feelings as well as ideologies. Marion King Hubbert, a petroleum geophysicist at the University of Chicago, considered as the founder of Peak Oil, predict that oil production in the United States will come to peak in 1970, and his bell curve is widely cited in academia. At an interview in 1989, before Hubbert died, he admits that the method he used to estimate American oil reserves has no scientific basis, just like raising one's finger to test the wind speed. He reveals that they (the oil giants) ask him to do so, namely to estimate the biggest oil reserves. . .he must

know. He has no choice but to figure out the curve of the oil peak and convince everyone. That is the truth. The related curves are imaginary, and he just roughly estimates and draws it out optionally. If he thinks the value is too high, he would draw the line lower, and vice versa. In addition to calculating the output of oil in certain periods of time according to the curve, it had nothing to do with mathematical problems at all. According to his personal sense, the largest oil reserve in the United States at that time was about 150 billion barrels [10].

On February 18, 2011, Matthew Parris' article "Relax, Beijing Won't Take All of our Pies" was released on the website of *The Times*, stating that the West's nervous reaction to China's "scramble" for resources in Africa is a misguided paranoia. The construction of the Tanzania–Zambia Railway Project once made Europeans in Africa extremely panic, and experts and politicians, showing people maps and charts, suggested that China was entering the sub-Saharan African region in order to squeeze the West out of there. That is quite a specious argument. The imagination of "monopoly" in resources has so great influence, and the imagination of the siege has so great vitality that people lose their logical thinking. China did not do such a bad thing as aggression, and even if Beijing really planned to hold the lifeline of Africa, it would definitely fail [11].

Leonardo Mangeri believes that fears of oil shortages led big powers to formulate the first oil-oriented foreign policy at the dawn of the 20th century, which allows the United States to take control of Persia and to make Iraq (Mesopotamia at that time) become a founded nation in the 1920s. After that, fears of the reduction of their own oil resources created close ties between the US government and Saudi Arabia. While fears that Arab oil would be affected by the Soviet Union, to a large extent, contributed to America's foreign policy towards the Middle East after the Second World War. This worldwide scare concerning shortage of oil and its political analysis and reaction are proved to be not consistent with the truth all the time. Over the course of about 150 years, the oil market is characterized by excessive sufficiency and low price, but only occasionally the opposite situation happens. Every prediction of oil depletion seems to end up in serious oil saturation [12].

The logic that bad news is always good tends to make people get caught in the misunderstanding of procurability. When estimating and predicting the uncertain things, people often judge by the distinctive features of their surroundings. For the things that are more obvious, more

prominent, much easier to search for and to imagine, people would be more impressive. Therefore, they always overestimate the occurrence frequency of those impressive things, while ignoring the law of chances. For example, people are significantly alarmed at some low probability but deep-impression events like terrorist attacks, SARS, shooting, sharks, etc., and they often pay attention to and overestimate the chances of such events, while underestimating the probability of the less remarkable but more dangerous and more frequent events, such as car accidents. In the spring of 2003, SARS was raging in China, and people turned pale at the mere mention of it. An American businessman had planned to go to Shanghai to do a business with a company. He had set his trip and asked for 10 days off. Finally, he canceled the trip to Shanghai because of SARS. After that, in this 10-day holiday, he rented a car, taking his family from Chicago to Orlando, Florida, for a holiday, and the journey was more than 4000 km. But in fact, even in the worst cases of SARS, the risk of dying from SARS in Shanghai was far lower than that from car accidents that might happen in the trip driving from Chicago to Florida and back [13].

Fear is often marketable, and bad news tends to spread rapidly because of fear. George Burgess, a famous shark expert and the curator of International Shark Archives at the University of Florida, points out that shark attacks at any place and any time are reported by the media, because the title itself, "Shark! Shark!" can arouse great interest. But in fact, from 2002 to 2004, there were only 14 deaths worldwide due to shark attacks, while fallen coconuts killed 150 people around the world each year, and it is 15 times more than the death toll of shark attacks [14].

In recent years, terrorism has become a topic that is more likely to catch concern. However, although the media always enormously exaggerate the information about the terrorist attacks such as Bin Laden's, statistics show that the harm caused by terrorism is actually slim for most people. In April 2006, the report from the US Department of State showed that 56 Americans died in international terrorist attack in 2005, of whom 47 died in Iraq. The report of 2007 pointed out that 28 Americans were killed in the global terrorist attack in 2006, and 22 of them were killed in Iraq. According to the statistics from National Weather Service, about 62 people die of lightning strikes each year, and 47 people were confirmed to be killed by lightning in 2006. So in 2006, Americans who died of lightning strikes are about eight times more than those who died from terrorist attacks outside Iraq [15]. In 2002, more

than 130,000 people died in car accidents in China. According to the statistics from the Association for Smoking and Health of China, the number of smokers in China has exceeded 300 million, of which more than 1 million died from smoking-related diseases.

Some environmentalists exaggerate some issues in order to attract people's attention and get their support. Norman Myers, a biologist at Oxford University, boldly predicts in an article in 1979 that 1 million species will become extinct from the earth from 1975 to 2000. In this way, an average of 40,000 species will disappear each year. The media began to frequently quote this predication without making textual research on this number. In recent years, he warns again that we are about to enter the era of human-induced biological holocaust. However, according to the list of endangered species recorded by the World Conservation Union, which announced in 1992 that the number of extinct mammals and birds was very small and the total extinction rate—assuming the total number of species is 30 million—is about 2300 species each year, but this statistics is rarely known [14].

Certain degree of crisis awareness or sense of urgency is necessary to prevent the disaster in the future, but excessive panic could easily lead to the nonrationality of the government's decision-making and countermeasures, resulting in mistakes, waste, and more detours. During the first oil crisis, despite that the scope of the Arab oil embargo was limited, the lack of understanding and the confusion about the situation exaggerated its impact, further exacerbating the global panic. Sometimes, the harm of the crisis itself is far lighter than that caused by people's overreaction to the crisis. Policy should not only be based on ideals and morality but much based on the reality, for the unrealistic and even wrong solutions may sometimes be worse than the problem itself.

For China, with greatly increased energy demand and dependence on imports, energy is not so imminent and deadly, and there is no reason in asserting that "China's energy is insecure" or "Energy is the 'Achilles' heel'" or the hindrance of China's development. Compared with the two oil crises in the 1970s, the international energy supply and demand are increasingly interdependent, and the security of the world's energy supply is obviously improved. Compared with energy-related environment, market, and other issues, China's energy security is more assured and more easily handled. Under normal circumstances, energy supply shortage augurs strong demand and economic prosperity, and the emergence of energy-related problems also creates new opportunities for China to

improve the market, reform relevant institutions, and deepen international cooperation.

China's energy security is very complex and widely influential. Before answering how China should safeguard its energy security, or what China should do or what it should do first to safeguard its energy security, China perhaps should learn lessons from other countries and think deeply about what should not be done or what should not be done first and foremost. With the absence of thorough understanding and objective assessment of related issues and challenges, if the government rushes to get a conclusion and formulates energy security policies and decisions that are inappropriate or even erroneous, China would pay more in the future.

With China as the context and from a global perspective, this book endeavors to analyze energy security with a new lens as objective and comprehensive as possible. The analysis of global energy security mainly aims at understanding the environment of China's energy security and analyzing the strategies that China should use for reference and should not adopt. As for the organization, the basic logical arrangement is as follows. First, by the comparison of views, it makes clear what energy security is not. For example, the world's energy resources will not really be exhausted, there is little necessity and possibility for human beings to fight for energy resources, the energy contention that people argue is more about the competition between investment and market rather than resource control, and energy security is not equal to energy independence, etc. Then, the book tries to help to deepen the understanding of international energy security from the historical perspective. The primary attribute of energy is commodity, and the law of supply and demand determines the development and trading as well as the increasingly diversified market of energy resources such as oil. The interdependence of international energy is gradually strengthened, and energy security becomes a more and more globalized topic. So energy security is undergoing a transformation from the national guarantee and collective security to global governance.

Finally, this book puts emphasis on China's energy security, stressing that the energy problem is not the "Achilles heel" or "the sword of Damocles hanging over the head" of China, and the "Going out" of energy resource enterprises does not mean "Bringing back." By analyzing the hot issues such as "Malacca Dilemma" and "China's Energy Threat Theory," the author points out that China and other countries have cognitive differences and certain degree of misreading and misunderstanding on China's energy and other issues. This part aims to make the readers

learn about what China's energy policy is not and to eliminate some myths and misunderstandings about China's energy security. From the chapters "China's Energy Strategy: From Self-Reliance to Energy Revolution" and "Beautiful China: The Chinese Dream of Green Development," readers can learn more about the content of China's general energy strategy, evolution, and China's environmental challenges and green development policies, as well as what China's energy strategy is and its trend. Energy is the epitome of economic and social development, and as China has undergone tremendous social changes, China's energy strategy is also undergoing an important transformation. In general, China is vigorously promoting domestic energy reform and mechanism innovation, embarking on building a nationwide carbon trading market and transaction system of green electricity, promoting the construction of energy internet, gradually integrating into international market, and actively promoting international energy cooperation and global energy governance.

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