21世纪高等学校专业英语系列规划教材



专业獎语数程

主 编 李丽君 李泽琳 郁 涵



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21 世纪高等学校专业英语系列规划教材

能源专业英语教程

主编 李丽君 李泽琳 郁 涵

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内容简介

本书所选语料既涉及煤、石油、天然气、水力等传统能源,同时也涵盖了核能、太阳能、风能、地热能、海洋能、生物质能等新型清洁能源,旨在让读者能够对传统能源及主流新能源应用的最新技术、国内外行业发展现状及形势有鸟瞰式的概览。

本书既可作为在校大学生及研究生专业英语教学的教材,也能够为广大从事能源开发与研究工作的科技工作者提供题材广泛、内容新颖的专业文献资料。

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前 言

专业英语(English for Professional Purposes)是专门用途英语(English for Specific Purposes,ESP)的重要组成部分。自 20 世纪 70 年代以来,ESP 教学及研究在我国越来越受到广泛的关注与重视,部分高校还开设了科技英语专业,招收本科生及研究生。"十三五"期间,随着我国对外开放的进一步扩大及"一带一路"倡议的提出,以质量和内涵建设为导向的高等院校外语教育改革不断深化;为满足专业英语课程教学的需要,我们在总结多年教学实践经验、精心选取时新语料的基础上编写了此书。

本书共分为13章,每章包含两篇文章。A篇着重介绍本章主题能源的概况和发展现状,建议作为精读篇章分析讲解。文中脚注标识相关背景知识点和专业术语,词汇表列出了核心词汇。A篇后的习题是基于语篇分析理论设计的,可分为两个部分:第一部分为阅读思考题,旨在促进读者对文章重点内容的理解;第二部分为语言知识点相关练习,包括能源英语高频术语的英汉搭配练习、专业词汇填空练习、科技英语文体典型句式的翻译练习等,能够帮助读者在拓展相关专业知识的同时,扎实地掌握必要的语言技能。B篇通常为该章主题内容的延伸与补充,有助于读者了解和掌握最新的学科及行业发展动态,文后的阅读理解题均仿照大学英语四、六级考试和考研英语题目设置,可在备考前强化训练时使用。本书最后提供了各章所涉及的专业词汇英汉对照表,方便使用者对照阅读,加深理解。

由于时间仓促,加之编者水平有限,书中难免会有错误及疏漏之处,敬请广大读者批评 指正。

> 编者 2017年11月

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O Unit 1

Brief Introduction of Energy

Text A

History and Future of Energy Development

- 1. Since prehistory, when humanity discovered fire to warm up and roast food, through the Middle Ages in which populations built windmills to grind the wheat, until the modern era in which nations can get electricity splitting the atom, man has sought endlessly for energy sources. Human has a long history of drawing profit from fossil fuels, on one hand the coal fuels the steam engines to run industrial rails as well as maintain households, and secondly, the oil and its **derivatives** are applied widely in industry and transportation. This model of development, however, is based on the **depletion** of fossil resources from periods of millions years without possibility for replacement as would be required to maintain.
- 2. Since the beginning of the Industrial Revolution, the question of the future of energy supplies has been of interest. In 1865, William Stanley Jevons ^① published *The Coal Question* in which he saw that the reserves of coal were being depleted and that oil was an ineffective replacement. In 1914, US Bureau of

能源发展的历史和未来

从史前人类发现用火来保暖和 炙烤食物,到中世纪人们建风车磨坊 磨面粉,再到现代国家用电流使原子 电离,人类在寻找能源资源方面所做 出的努力永无止境。人类从化石能源 中获益的历史悠久:首先,煤炭驱动 蒸汽机为工业火车带来动力,并维持 家庭正常生活;其次,石油及其衍生 产品广泛运用于工业和交通中。但 是,这种发展模式意味着储藏数百万 年的化石资源被不断消耗,并且没有 可以维持需求的可替代能源。

自工业革命之始,未来的能源供应就是一个热议问题。早在1865年,威廉•斯坦利•杰文斯就曾在《煤炭问题》一书中写道:煤炭资源将会枯竭,而石油也无法弥补所短缺的资源。1914年,美国矿业局声称石油总

① William Stanley Jevons: 威廉姆·斯坦利·杰文斯,英国著名的经济学家和逻辑学家,边际效用学派的创始人之一,数理经济学派早期代表人物之一,著有《煤炭问题》(The Coal Question)。



Mines stated that the total production was 5.7 billion barrels. In 1956, Geophysicist M. King Hubbert deduces that US oil production will peak between 1965 and 1970 (peaked in 1971) and that oil production will peak "within half a century" on the basis of 1956 data. In 1989, predicted peak by Colin Campbell. In 2004, OPEC estimated, with **substantial** investments, it would nearly double oil output by 2025.

- 3. The environmental movement has emphasized sustainability of energy use and development. Renewable energy is sustainable in its production; the available supply will not be **diminished** for the foreseeable future—millions or billions of years. "Sustainability" also refers to the ability of the environment to **cope with** waste products, especially air pollution. Sources which have no direct waste products (such as wind, solar, and hydropower) are brought up on this point. With global demand for energy growing, the need to adopt various energy sources is growing. Energy conservation is an **alternative** or complementary process to energy development. It reduces the demand for energy by using it efficiently.
- 4. Extrapolations from current knowledge to the future offer a choice of energy futures. Predictions parallel the Malthusian catastrophe hypothesis [®]. Numerous are complex models based scenarios as pioneered by *Limits to Growth* [®]. Modeling approaches offer ways to analyze diverse strategies, and hopefully find a road to rapid and sustainable development of

产量是 57 亿桶。1956 年,地理学家 M. 金 · 哈伯特推测美国石油产量将 会在 1965—1970 年达到顶峰 (美国石油产量在 1971 年达到顶峰),根据 当年的数据石油将会"在半个世纪内"达到产量顶峰。1989 年,科林 · 坎贝尔再次推测石油产量将达到顶峰。2004 年,石油输出国组织估计,随着投资的增加,2025 年石油产量将翻一番。

环境运动强调能源的可持续利用和发展。可再生能源具有可持续性;其供给量在可预见的未来的数亿年间并不会减少。"可持续性"也指生态环境对于污染物的应对能力,特别是空气污染。一些不直接产生污染物的能源(如风能、太阳能和水能)便具有可持续性。随着全球能源需求量的增加,能源资源多样化的需求也在增加。节约能源对于能源发展来说是一种选择性或者辅助性过程,同时也通过有效利用能源减少能源需求。

现状及对未来推测为能源之后的发展提供选择。一些推测类似于马尔萨斯灾难假说,大量预测是基于《增长的极限》一书中提出的一些复杂的模式。建模提供了多种分析策略,并有望找到人类快速、可持续发展的道路。短期能源危机也是能源发展的

① OPEC (Organization of Petroleum Exporting Countries): 石油输出国家组织,该组织致力于协调各国石油政策,商定原油产量和价格,采取共同行动反对西方国家对产油国的剥削和掠夺。

② Malthusian catastrophe hypothesis: 主要指不断增长的人口早晚会导致粮食供不应求。

③ Limits to Growth:《增长的极限》是被誉为系统思考大师之一的德内拉·梅多斯(Donella Meadows)的经典之作,本书的主要观点是增长应被视为是广泛的,并不局限于地球和经济,我们自身的心智、所从事的各类活动,如投资等,无不有此追求。而这些行为模式也有其可能的极限。



humanity. Short term energy crises are also a concern of energy development. Extrapolations lack **plausibility**, particularly when they predict a continual increase in oil consumption.

- 5. Energy production usually requires an energy investment. Drilling for oil or building a wind power plant requires energy. The fossil fuel resources that are left are often increasingly difficult to **extract** and **convert**. They may thus require increasingly higher energy investments. If investment is greater than the energy produced, the resource is no longer an effective energy source. This means that resources, the wasteful ones, are not used effectively for energy production. Such resources can be exploited economically in order to produce raw materials. New technology may **ameliorate** this problem if it can lower the energy investment required to extract and convert the resources, although ultimately basic physics sets limits that cannot be **exceeded**.
- transformed agriculture around the globe, world grain production increased by 250%. The energy for the Green Revolution was provided by fossil fuels in the form of fertilizers (natural gas), pesticides (oil), and hydrocarbon fueled irrigation. The peaking of world hydrocarbon production (peak oil) may lead to significant changes, and require sustainable methods of production. One vision of a sustainable energy future involves all human structures on the earth's surface (i.e. buildings, vehicles and roads) doing artificial photosynthesis (using sunlight to split water as a source of hydrogen and absorbing carbon dioxide to make fertilizer) efficiently than plants.

问题。一些预测不太可信,特别是石油消耗量将会持续增加的预测。

能源生产通常需要能源投入。钻探油井或者建立风力发电站需要能源。剩余的化石资源通常更加难以提取和转化,也就可能需要增加能源投入。如果开发投入的能源比生产的能源还多,那么这一资源就不再是有效资源。这就意味着,这些不盈利的资源在能源生产中不能被有效利用。为了生产原材料,可以节约开采这些资源。尽管新技术不能超越基本物理设备限制,但如果这些技术可以降低这些能源在提取和转化过程中的能源投入,那么问题可能会解决。

1950—1984年间,由于绿色革命使得全球农业转型,世界粮食产量增加了250%。化石燃料为绿色革命提供了多种形式的能源,包括使用天然气生产化肥,利用石油制造杀虫剂,以及以碳氢化合物为燃料进行灌溉。世界碳氢化合物产量达到顶峰(石油产量达到顶峰)可能带来巨大的变化,并且也需要用可持续的方式来开发这一资源。其中一个可持续能源的远景是,地球表面所有人造结构(例如:建筑物、汽车和公路)都进行比植物更有效的人工光合作用(利用阳光将水分解以作为氢的来源并吸收二氧化碳制造肥料)。

① Green Revolution: 绿色革命,是指20世纪60年代某些西方发达国家将高产谷物品种和农业技术推广到亚洲、非洲和南美洲的部分地区,促使其粮食增产的一项技术改革活动。

7. With contemporary space industry's economic activity and the related private spaceflight, with the manufacturing industries, which go into Earth's orbit or beyond, delivering them to those regions will require further energy development. Commercialization of space includes satellite navigation systems, satellite television and satellite radio, and the investments of which are estimated to be \$50.8 billion. Researchers have contemplated space-based solar power for collecting solar power in space for use on Earth. Space-based solar power only differ from solar and other similar radiant energy collection methods in that the means used to collect energy would reside on an orbiting satellite instead of on Earth's surface. Some projected benefits of such a system are a higher collection rate and a longer collection period due to the lack of a diffusing and refracting atmosphere and nighttime in space.

当代航天工业的经济活动、相关 私人航天飞机的发展,以及将飞行器 送入地球轨道或送入太空的制造行 业都需要能源的进一步发展。包括卫 星导航系统、卫星电视及卫星广播在 内的太空商业化的投资额据估计将 达到 508 亿美元。研究人员考虑使用 空间太阳能站进行太阳能发电来供 给地球,空间太阳能站与地球太阳能 和其他辐射能唯一的不同就是能量 的采集方式,空间太阳能站的发电板 在一颗轨道卫星上, 而不是在地球表 面。由于没有大气层的散射和折射, 太空中也没有夜晚,这一具有更高采 集率和更长采集时间的系统预计将 会带来更多利益。

(选文来源: https://en.wikipedia.org)

New words and expressions

alternative a.

选择性的, 交替的

ameliorate v.

改善,减轻(痛苦等)

artificial a.

人造的

commercialization n.

商品化, 商业化

contemplate v.

沉思, 冥思苦想 当代的,同时代的

contemporary a.

转变,使……改变信仰

convert v. cope with

处理, 应对

depletion n.

消耗. 损耗

derivative n.

衍生物,派生物

diminish v.

减少, 使变小

exceed v.

超过, 胜过

extract v.

提取, 摘录

extrapolation n.

推断

fertilizer n.

肥料



fossil fuel 矿物燃料, 化石燃料

hydrocarbon n. 碳氢化合物

irrigation n. 灌溉

navigation n. 航行, 导航

parallel v. 与……媲美,比得上

pesticide n. 杀虫剂

plausibility n. 似乎有理,貌似可信 radiant a. 辐射的,光芒四射的

refract v. 使折射

substantial a. 大量的,实质的 transform v. 改变,使……变形



Reading for thinking

Task 1 Overview

Complete the following table which summarizes the main ideas of Text A.

Paragraphs	Main ideas		
Para.1-2 (History of energy development)	Man has sought		
Para. 3-4	1.	of energy use and development	
(Notions about energy development)	2	from current knowledge to the future	
Para. 5-7	1	recover the wasteful energy resource	
(Future of energy development)	2.	on all human structures	
	3.	for use on Earth	

Task 2 Discussion

Work in pairs and discuss the following questions.

- 1. How many energy resources does the author mention in paragraph 1? (para. 1)
- 2. What's the meaning of "sustainability"? (para. 3)
- 3. How to decide whether an energy resource is a wasteful one? (para. 5)
- 4. What did fossil fuels provide for the Green Revolution? (para. 6)
- 5. What's the difference between space-based solar power and the regular solar power? (para. 7)

Language building-up

Task 1 Collocation

Match the Chinese terms with their English equivalents.

the Industrial Revolution 卫星导航系统 sustainable development 可再生能源 风力发电站 fossil fuel 工业革命 cope with 能源节约 renewable energy 绿色革命 energy conservation 原材料 wind power plant raw material 可持续发展 化石燃料 Green Revolution 处理: 应对 satellite navigation system

Task 2 Specialized vocabulary

solar nower

contemplate

Complete the following sentences by using the terms given below. You have to change the form if necessary.

netroleum product

electricity

Joint power	pourous product	0.000.000
refer to fossil fuel	irrigation	hydroelectric power
fertilizer bio-fuel	global warming	cope with
1 "Custainability" also	the chility of the environ	amont to worte maduate
especially air pollution.	the ability of the environ	nment to waste products,
2. The energy for the Green Revol	ution was provided by	in the form of
(natural gas), pesticides (oil), an	d hydrocarbon fueled	
3. Researchers have sp	ace-based solar power for c	ollecting solar power in space for use
on Earth.		
4. The increasing use of energy sir	ce the Industrial Revolution	has also brought with it a number of
serious problems, such as	, present potentially gra	eve risks to the world.
5. The word energy is used as a sy	nonym of energy resources	s, and most often refers to substances
like fuels, and	in general.	
6. Renewable energy technologies	include,	, and wind power.
Task 3 Translation practice		

Translate the following sentences into Chinese. Pay attention to the usage of expressions newly-learned in Text A.



- Since the beginning of the Industrial Revolution, the question of the future of energy supplies has been of interest.
- Renewable energy is sustainable in its production; the available supply will not be diminished for the foreseeable future—millions or billions of years.
- "Sustainability" also refers to the ability of the environment to cope with waste products, especially air pollution.
- 4. Short term energy crises are also a concern of energy development.
- Researchers have contemplated space-based solar power for collecting solar power in space for use on Earth.

Text B

How Can We Store More Energy from the Sun and the Wind?

- 1. Deep in the Nevada desert, thousands of mirrors arrayed in concentric circles face the sky, lit up by the sun. All this reflected sunshine is directed to the top of a 640 feet (195 m) tower standing in their midst. It's an innovative power plant generating electricity, but not in a way you might expect. And it can carry on doing so even after the sun goes down. How?
- 2. The **concentrated** light heats up liquid salt pumped to the top of the tower—the temperature reaches 566 °C (1,050 °F)—and this heat is then used to make steam to power an electricity **generator** in another part of the plant.
- 3. "The issue with solar traditionally is an **intermittent** power source—you can only produce electricity when the sun is shining," explains Kevin Smith, whose company Solar Reserve built the Crescent Dunes plant². "But because we store the energy as heat,

怎样储存更多的太阳能和风能

内华达沙漠的深处,上千面镜子朝向天空围成一个同心圆,所反射的太阳光全部聚焦在中心一座640 ft(195 m)高塔的顶端。这是个新颖的发电站,但是它的发电方式并不是你想的那样。即使太阳下山,这个机组仍然可以发电。这是怎么做到的?

"传统太阳能是一种间断能源, 只有在阳光明媚的时候才能发电," 凯文·史密斯说,"但是当我们将能 源以热量的形式储存,我们就可以 像常规的天然气发电站一样,每天

① Nevada: 内华达州,位于美国西部,是全美国气候最干燥的一个州;该州有很大一部分地区都属于沙漠型的气候,也是美国阳光资源条件最好的几个自治州之一,但事实上它已经成为美国西南部太阳能发电行业的领跑者。

② the Crescent Dunes Plant: 新月沙丘塔式熔盐光热电站,简称为新月沙丘电站,为全球装机最大的塔式熔盐光热电站,该电站因其采用领先的塔式熔盐技术,配 10 小时储热系统,首次在百兆瓦级规模上成功验证了塔式熔盐技术的可行性,而成为光热发电发展史上重要的里程碑。

we can reliably produce electricity 24 hours a day, just like a conventional gas fired power station."

Growing market

- 4. The plant is one of a raft of sustainable energy storage solutions trying to address renewable energy's Achilles heel[®]: its variability—ignoring tidal power's constancy. If we could store the electricity that sun and wind produce, we could **tap into** those stores when production **dips**. And this is the only way we're going to mount an effective challenge to the dominance of fossil fuels, experts say. Yes, tidal power is renewable and constant, but as yet, we haven't found commercially viable ways of tapping into it.
- 5. Storage methods currently being used around the world include batteries, **flywheels**, **geothermal** plants, **compressed** air and **hydrogen**—even ice. But the most popular method is hydro power—water pumped to the top of a mountain and then released to power turbines at the bottom.
- 6. According to research company Navigant, global energy storage installations are going to rise nearly 14,000 MW by 2025. "We are moving away from very large conventional power stations that produce electricity which is sent through the **grid** to consumers, to a system where power is produced in a much more distributed way," says IHS's Sam Wilkinson. "So storage is obviously a major focus, because it allows you to **compensate** for and correct for a lot of that **fluctuating** generation that comes from renewables."

Power to the people

7. Our homes are increasingly being used for

24 小时持续供电。"他的太阳能储备公司建立了新月沙丘电站。

不断扩大的市场

可持续能源的缺陷是其间歇性 (只有潮汐能具有持续性),这座发 电站就是解决这一缺陷的众多方 法之一。如果我们可以储存太阳和 风所产生的电量,那就可以在发电 量减少时使用储存的能量。专家们 认为这是有效挑战化石能源支配 地位的唯一途径。是的,潮汐能是 可再生能源,而且可以持续发电, 但是目前仍没有可行的商业化开发 方式。

当今世界上所使用的储能方式包括电池储能、飞轮储能、地热储能、压缩空气储能、氢储能,甚至是冰储能。但是流行最广的是水能储能——将水抽至山顶,之后放水驱动山脚的涡轮发电机。

根据法维汉公司的调查,全球能源储存设备的储存量到 2025 年将会上升到接近 14 000 MW。"之前我们使用大规模常规发电站通过电网向客户输送电力,现在我们正在向更为分散的能源生产方式转变," IHS 公司的萨姆•威尔金森说,"因此显而易见,储能是核心所在,因为储能可以调控不稳定的可再生能源的间歇性。"

惠及大众的储能

我们的住所也越来越多地用来

① Achilles heel: 阿喀琉斯之踵,原指阿喀琉斯的脚跟,因是其唯一一个没有浸泡到神水的地方,是他唯一的弱点。后来在特洛伊战争中被人射中致命,现在一般是指致命的弱点、要害。



energy storage as well. The US electric car manufacturer points out that the average household uses more electricity in the morning and evening than during the day, when solar energy is plentiful. So its battery charges during the day from solar roof panels, then powers the home in the evening. "Without a home battery, excess solar energy is often sold to the power company and purchased back in the evening at a higher price," Tesla argues. "The mismatch adds demand on power plants and increases carbon emissions," it adds. The same principle is being applied at a new housing development in Hoog Dalem, the Netherlands—part of the Universal Smart Energy Framework project being rolled out by a consortium of companies, including ABB[®], IBM[®] and Stedin.

"Three tennis courts"

- 8. Larger battery plants such as Smarter Network Storage (SNS) in Leighton Buzzard, UK, are also likely to play a big role. The plant comprises 50,000 lithium-ion battery cells, across a site the size of three tennis courts. It can store enough energy to power 1,100 typical UK homes for a day during times of average demand.
- 9. Plant boss Nick Heyward explains that UK electricity grids need to balance supply and demand at all times, but they are struggling to cope as more wind and solar power comes online. "One solution could be to add capacity to the existing grid, but that could be very expensive and **disruptive**," he says. "And then you have the problem of energy **curtailment**—where wind and solar plants are switched off when there isn't much demand, which is a waste."

储能。美国电动车制造商指出,普 通家庭在早晨和晚间的用电量高于 白天,而白天才是太阳能最充足的 时候, 所以白天屋顶上的太阳能发 电板可以给太阳能电池充电, 到晚 上就可以为住所供电了。"而在没有 太阳能电池的家庭中, 太阳能发出 的多余电量通常会卖到电力公司, 晚上再以更高的价格回购电能使 用,"特斯拉说,"这种供需不均衡 增加了发电机的需求量,也增加了 碳排放量。"荷兰霍格拉朗一项新房 屋发展项目也同样适用这一规律, 该项目隶属于 ABB、IBM 和 Stedin 公司联合推出的通用智能能源框架 项目。

"三个网球场的面积"

大型蓄电池厂,如位于英国贝德福德郡的智能网络蓄能公司(SNS),可能将起到重要的作用。该厂有50000组锂离子电池,占地面积约为三个网球场,它所储存的电量可以满足1100个英国家庭一整天的常规用电需求。

电厂老板尼克·海沃德解释说,英国电网一直需要平衡供需,但他们正设法使更多的风能和太阳能入网。"一种解决方案可以是增加现有电网的承载量,但费用非常昂贵,且容易造成混乱,"他说,"另外还有减少产能的问题——在能源需求量不大的地方关闭风能和太阳能发电机是一种浪费。"

① ABB (Asea Brown Boveri Ltd.): 位列全球 500 强企业,集团总部位于瑞士苏黎世,是全球电力和自动化技术领域的领导企业, 致力于帮助电力、工业、交通和基础设施等领域客户提高业绩,同时降低对环境的影响。

② IBM (International Business Machines Corporation): 国际商业机器公司,是全球最大的信息技术和业务解决方案公司,拥有全球雇员 30 多万人,业务遍及 160 多个国家和地区。

10. Storage systems like SNS offer the ability to export energy to the grid at times of high demand, and keep it in reserve when demand is low. Mr. Heyward believes that if such plants were **replicated** across the UK, it could unlock more than £600m of benefits annually by 2040.

Green but unclean?

- 11. But environmentalists are concerned that many of the constituents in the conventional battery, such as cobalt and nickel, are pollutants. So the race is on to find cleaner alternatives.
- 12. Aquion's saltwater and manganese oxide battery is made from more sustainable materials than the typical lithium-ion battery, tolerates more charge and discharge cycles, costs less, and doesn't catch fire. Ambri, meanwhile, has developed a liquid metal battery, which it says is low-cost and emissions free. It also says its liquid electrodes are stronger than the solid ones found in common batteries, and thus less susceptible to failure.
- 13. While such innovations may be welcome, the fact remains that the US still **derives** the vast majority of its electrical storage from **pumped** hydro—which is not one of the most efficient energy storage technologies. This rather defeats the purpose of renewable energy storage. The number of projects in the pipeline **bodes** well, says the Energy Storage Association, but we are still a long way from the storage levels we need.
- 14. One big **impediment** is regulation—or lack of it. Governments around the world are only now beginning to respond to this new energy landscape.

(选文来源: http://www.bbc.com/news/business-34974644) 像 SNS 这样的储能系统有能力在能源需求量高的时段提供电能,而在需求量低的时段储存电能。海沃德先生相信,如果此类蓄能电厂在英国可以推广,那么到 2040 年将产生年均 6 亿多英镑的收益。

绿色但不清洁?

但让环保人士担忧的是,传统 电池中像钴和镍这样的成分属于污 染物,所以寻找清洁替代品的比赛 开始了。

阿奎昂能源公司制造出了含有 盐水和氧化锰的电池,其原材料比 普通的锂电池更具有可持续性,可 以多次充放电循环,成本更低且具 有耐火性。同时,安波里公司研制 出一种液态金属电池,据说成本低 且零排放,并且这种电池的液态电 极也比常规固态电池更强,所以更 不易损坏。

虽然这些发明可能会受到欢迎,但事实上美国仍在使用抽水储能储存大部分电能,而这种方式并不是最有效的储能技术,它并没有达到可再生能源储能的目的。储能协会称,虽然这些管道工程看起来不错,但要达到我们所需的储能水平,还有很长的路要走。

其中一个大的障碍就是相关规 定——或者说是缺乏相关规定。全 球各国政府现在才开始对于这种新 能源业态有所回应。



New words and expressions

排列 array bode 预示 cobalt n. 钴 补偿 compensate v. 压缩 compress concentrated a. 聚集的 同心的 concentric a consortium n. 集团 成分 constituent n. 常规的 conventional a. curtailment n. 削减 获取 derive v. dip v. 下跌 disruptive a. 破裂的,制造混乱的 电极

electrode n. 电极 fluctuating a. 波动的 flywheel n. 飞轮 generator n. 发电机 geothermal a. 地热的

grid n. (输电线路、天然气管道等的)系统网络

hydrogen n. 氢 impediment n. 妨碍 intermittent a. 间歇的 manganese oxide 氧化锰 midst n. 中间 nickel n. 镍

pump v. 用泵等抽出或压入气体、液体等

replicate v. 复制

susceptible a. 易受影响或损害的

tap into 挖掘 variability n. 变化性

Comprehensive questions

1. The word "impediment" in the sentence "One big impediment is regulation—or lack of it." (para.

2

3

	14) is closest in meaning to					
	A. advantage	B. obstacle				
	C. challenge	D. opportunity				
2.	According to Kevin Smith, what is one b	est way to cope with solar power's variability?				
	A. To store the energy as heat and produce electricity when the sun goes down.					
	B. To store the energy with geothermal plants and produce electricity when the sun goes down.					
	C. To use the energy to pump the water t the bottom.	o the top of a mountain and release to power turbines a				
	D. To store the energy in batteries and pro-	oduce electricity when solar power energy dips.				
3.	Which of the following is NOT the advar	ntage of electrical storage innovations?				
	A. Balancing electricity supply and demand.					
	B. Reducing carbon emission.					
	C. Eliminating pollutant.					
	D. Earning money.					
	According to the passage, which of the fo	ollowing is NOT true?				
	A. There are plenty of sustainable energy	y storage solutions trying to address renewable energy's				
	high cost issue.					
	B. Storage allows energy companies to	compensate for and correct for fluctuating generation				
	comes from conventional energy.					
	C. Storage systems can export energy to	the grid at times of high demand, and keep it in reserve				
	when demand is low.					
	D. US have given up the most popular s	storage method-hydro power and have adopted liquid				
	electrodes from Ambri.					
5.	As for the prospect of energy storage, the	author suggests				
	A. Electrical storage innovations will so	on be used in the daily life.				
	B. Governments around the world had re	sponded to changes in energy storage rapidly.				
	C. Electrical storage still has a long way	to go to reach the storage levels people need.				

D. Hydro power storage is an efficient way to store energy and should be adopted widely.