Unit 1

The Hydrogen Economy

Objectives

- Develop your skills to identify the discourse pattern and predict the types of information before reading a lengthy text carefully;
- Increase your awareness of the communicative purpose of writing and the choice of rhetorical strategies to achieve the communicative purpose;
- Acquaint yourselves with the method of organizing information chronologically;
- Summarize the history and current status of fuel cell technology;
- Analyze the advantages and disadvantages of fuel cell powered vehicles;
- Give an oral account of historical events with the help of time expressions;
- Predict the prospect of the widespread applications of fuel cell technology;
- Use word combination rules to help you build up technical vocabulary;
- Increase your sensitivity to heavy noun groups in scientific texts;
- Follow the flow of events with the help of time expressions when listening to a talk;
- Develop your skills to distinguish the main points from specific details when listening to science news, talks, or interviews.

Task 1: Familiarize yourselves with the following new words, set expressions or lexical chunks to prepare for reading the texts in this unit.

allude to	暗指，影射
alternative energy system	替代能源系统
alternative to	替代
ambient air	环境空气
ammonia borane, NH_3BH_3	硼烷氨
ammonium borohydride, NH_4BH_4	硼氢化氨
Apollo 13 mission	阿波罗 13 号飞行任务
appurtenance	配件
assert	断言，声称
awkwardly extreme temperature	难以控制的极端温度
barely exothermic	几乎不放热的
benchmark	参考标准
bid on (a project)	竞标(项目)
boulder	巨石
bring out side perspectives to discussions	讨论中征求业外人士的意见
broken bolt	破损的螺钉
buy into (the plan)	认可(该计划)

cadmium	镉
carbon dioxide emissions from hydrogen generation	在生产氢过程中的二氧化碳排放
Catch-22	第 22 条军规；左右为难的困境
cathode	阴极
change his trajectory	改变其运动轨迹
chassis	汽车底盘
compact portable power sources	小型便携式动力源
compounds	化合物
compressor	压缩机
concept car	概念车
configuration	配置，结构
consortium	财团
cryogenic temperature	低温
decompose	分解
be decomposed by a catalyst at the anode into electrons and protons	在阳极由催化剂来分解成电子和质子
decomposition reaction	分解反应
discharge and recharge	放电与充电
dry cell	干电池
electric generator	发电机
electric motor	电机
electrode	电极
electrolysis	电解
electrolyte	电解质
electromagnetic induction	电磁感应
electron	电子
energy-conversion device	能源转换装置
energy crunch	能源危机
energy density	能量密度
energy-producing ingredient	产生能量的配料
escalating percentages in subsequent years	以后逐年提高的比例
exhaust fume	废气
exotic technology	奇特的技术
final disposition	最终部署；最终处置
fledgling industry	新兴产业
forging full speed ahead	正在全速发展
fossil fuel	化石燃料
frustrated	受到挫折
frustration	挫折
fuel cell	燃料电池
futuristic	属于未来的

generate energy	产生能量
gestation period	酝酿阶段
hand-cranked	手摇的
hibernation	冬眠，不活跃状态
go into forced hibernation	被迫进入冬眠状态
hibernate	冬眠的，不活跃的
hit the showroom floor	在车展中成功
hurdle	障碍
hydrocarbon	碳氢化合物
hydroelectric plant	水电厂
hydrogen-powered automobile	氢气动力汽车
incandescent bulb	白炽灯
inertia and momentum	惯量和动量
infrastructure	基础设施
infuse ammonia borane into	将硼烷氨注入.....
instrumental	有作用的；作为工具的
integrated into a regular gas station	与普通加油站合并
intercept	拦截
internal combustion engine	内燃机
jurist	法学家
kinetic energy	动能
lawsuit	法律诉讼
lead, nickel, cadmium, sodium, lithium, aluminum, zinc	铅、镍、镉、钠、锂、铝、锌
lead-acid battery	铅酸电池
light trucks and delivery vans	轻型卡车和厢式送货车
liquefy	液化
lithium-ion battery	锂离子电池
make grandiose claims	发表宏伟的言论
mark an incremental step toward	标志着朝.....方向迈开的一大步
mass and velocity	质量和速度
mechanical linkage	机械联动装置
methanol	甲醇
molten carbonate	熔融碳酸盐
multifaceted	多面的
multiplying	乘，成倍增加
nanometer-scale	纳米级
nanotechnology	纳米技术
next to nothing	几乎为零
nonrenewable resource	不可再生的资源
nudge modern society toward a hydrogen-based economy	促使现代社会向氢经济方向发展
opens up ways to	为.....开辟途径

osmium and uranium	锇和铀
outfitting	装配
outnumber by more than three to one gasoline-engine cars	其数量是汽油动力车的三倍多
overall vehicle design	整车设计
paradigm shift	范式转换
pay a premium	出高价
phosphoric acid	磷酸
podium	演讲台
potable water	饮用水
potassium hydroxide electrolyte	氢氧化钾电解质
prompt (sb. to do something)	促使，引起
prompt the reaction	引发反应
proton-exchange membrane cell	质子交换膜电池
prototype vehicle	原型车
public roll-out	首次公开亮相
radar screens	雷达幕；关注范围
range	（续）驶（里）程
realm of the exotic	不熟悉的领域
residuum	残渣，残余物
resurgence	复活，再现
rhetoric	修辞，华丽的言辞
roof-to-bumper windshield	从车顶到保险杠的挡风玻璃（设计）
sodium	钠
solid oxides or molten carbonate as electrolytes	固态氧化物或熔融碳酸盐作为电解质
solid polymer fuel cell	固体聚合物燃料电池
State of the Union Address	国情咨文报告
stationary equipment and portable devices	固定设备和便携装置
storage battery	蓄电池
strike out on his own	独立创业
surreptitiously	偷偷地
synthesize ammonia from hydrogen and nitrogen	用氢和氮合成氨
thermodynamic property	热力学特性
thin electrolytic membrane	电解薄膜
throttle, steering or brake	油门、方向盘和刹车
toxic	有毒的
turn something that large on a dime	使如此浩大的工程突然转向
unmuffled competitor	没有消音器的竞争对手（即汽油动力车）

unprecedented level of respect	前所未有的尊重
unveil	公布于众
venture capital	风险资本
veteran	退伍军人
voltaic pile preceded the fuel cell by 39 years	伏打电堆比燃料电池早 39 年
zero-emission vehicle	零排放车辆

Task 2: Skim through Text I and 1) match the subheadings on the left column with the types of information on the right, 2)identify the sentence in the opening section which indicates the types of information and the organization of the text, 3) explain why the author quotes Present Bush's State of the Union Address.

Subheadings	**The types of information**
1) The opening section	A) The prospect of the hydrogen economy
2) The Gas Battery	B) The application of fuel cells in consumer electronics
3) Electric Car Resurgence	C) The development of various types of fuel cells
4) Into the Mainstream	D) The significance of fuel cell technology
5) Out of the Laboratory, Someday	E) The origin and development of fuel cell technology
6) Fuel-Cell Phone	F) The status of fuel cell cars

The sentence in the opening section which indicates the types of information and the organization of the text: _____

_____

Text I

Fuel Cells[1]

Henry Petroski

1 In his **State of the Union address** early in 2003, President George W. Bush called for promoting energy independence for the United States while making dramatic improvements in the environment. The familiar **rhetoric alluded to** a comprehensive plan involving efficiency and conservation as well as developing cleaner technologies for domestic energy production. But the