期待“百人会”发展壮大

Looking forward to the Expansion in 100-person Club

文/ 万宝全 Text/Wan Baoquan

中国电动汽车“百人会”在北京成立，真正成为汽车业内政、产、学、研的首次聚合，成为国家在电动汽车领域的第三方智库，政策、产业和市场辐射面极为广泛。是中国电动汽车在产业聚合上的一个新里程碑。

“百人会”的价值几何？

“百人会”是以促进电动汽车发展为目标，打破行业、学科、所有制和部门局限，搭建一个通过研究和交流推进多领域融合、协同创新的发展论坛。“百人会”定位为中国电动汽车领域跨学科、行业、部门、所有制的，非官方和非营利性的政策和学术研究机构，国家在电动汽车领域的第三方智库。

“电动汽车产业已经上升到了国家战略，“百人会”在此背景下成立。”“百人会”理事长、原国务院发展研

China electric car 100-person club was established in Beijing, which is a platform for the experts in the government, production and academic fields. It is also a national third party think tank in the field of electric vehicles, It will produce an impact in policy, industry and market. Thus, it is a new milestone in the history of China's electric cars.

The value of the 100-person club?

This club is aimed to promote the electric car development, break the barriers between the industry, government, and other fields. It is to build a multidisciplinary and collaborative platform through the study and exchange. This club is a nongovernmental and nonprofit institution in policy and academy, and in the field of electric vehicles, a national third party think-tank.

This club was established under the background that the electric car industry has risen to national strategy. Chen Qingtai former party secretary and deputy director of the state council development research center points out that at present the electric vehicles are at the start of the industrialization and China in this area generally keeps up with the pace of the world. China should

究中心党组书记、副主任陈清泰指出，目前是电动车产业化初期，我国在这方面大体跟上了全球的步伐。推动电动汽车产业发展，将提高国家能源的安全性、降低大气污染和温室气体排放，电动车是我国产业升级一个突破口，不仅要作为一个短期增长的经济增长的点加以维持，更应该作为迎接第三次工业革命的一个亮点。

“百人会”学术委员会联合主席、原科学技术部部长、中国科学院院士徐冠华指出，“百人会”的成立对于电动汽车发展，是一个里程碑，将会对未来电动汽车发挥非常深远的影响。“‘百人会”的优势在于是一个跨部门、跨专业的平台，有利于统一思想。而统一思想是制定政策、标准、技术路线的基础。”

“百人会”成立大会上就发布了九个研究课题：充电基础设施相关问题、动力电池相关问题、纯电动汽车示范推广与商业模式、增程/插电式乘用车技术路径及节能减排分析、微型短途电动汽车有序发展与规范管理、中国电动交通一体化和智能化系统研究、国内外电动汽车产业发展现状与趋势调研和分析、全球电动汽车的政策梳理和创新节能与电动汽车不同技术路线的分析。

“百人会”作为国家在电动汽车领域的第三方智库，具有极为广泛的产业聚合面，在整车领域包括一汽、上汽等国企，吉利、比亚迪、万向等民企的掌门人。这使这一

promote the development of electric vehicle industry, improve the national energy security, reduce air pollution and greenhouse gas emissions. Electric cars are the breakthrough point in China's industrial upgrading. It should be maintain as a short-term growth point of economic growth and one of the highlights of the third industrial revolution.

Xu Guanhua the chairman of academic committee in this club and former science and technology minister and Chinese academy of sciences academician pointed out that the establishment of this club is a milestone in the development of electric vehicles and will produce a very far-reaching influence on the future of electric cars. This club is a professional platform across departments and fields and is conductive to obtain unified thought. Unified thought is the basis of developing the policies, standards, and technical routes.

In the founding ceremony of this club, there were nine research topics which were announced: charging infrastructure, power battery, pure electric vehicle demonstration promotion and business model, extended range/plug-in electric vehicle technology path and energy saving and emission reduction, mini electric car development and standard management, China electric and intelligent transportation system, electric car industry development at home and abroad (present situation and trend), global policy and innovation in the electric car, and different tech routes in energy saving and new energy vehicles..

This club is the national third party in the field of electric vehicles and has a broad impact. Chen Qingtai former party secretary and deputy director of the state council development research center acts as the chairman in this club. The other members of this club are the heads from the state-owned enterprises, including SAIC, FAW and private companies such as GEELY, BYD. Different from those

组织不同于此前的那些产业联盟，将能够更有力地推动汽车产业化初期的资源聚合，打破电动汽车产业化的瓶颈。

“百人会”的意义何在？

中国电动汽车产业搞了这么多年，雄心勃勃的发展计划屡屡落空，大大小小的产业联盟形同虚设。怪政策吧？国家坚持发展电动汽车的政策“四不变”——电动汽车的国家战略地位不变，纯电驱动的技术路线不变，国家的支持政策不变，既定的发展目标不变；怪市场吧？特斯拉一来就应者云集，风生水起，弄出了“鲶鱼效应”。

问题在哪里？答曰：政出多门！各唱各的调，各走各的道，出了问题，板子也不知道打谁的屁股。原来说，国务院是让工信部牵头，只是牵头，不能命令和指挥其他部委，牵来牵去没有结果；加上地方政府和中央政府的博弈，眼看国外高歌猛进，我们还是一头雾水。

“百人会”在这样的背景下成立，相当于政府各部委有了一个议事平台、协调机构，对于电动汽车的各种争论能够在这里获得一个相对统一的共识，方便部委决策；或者说，部委可能不好意思对大家都同意的意见唱反调，阳奉阴违或许也有所收敛。

“百人会”的主要组织形式，由理事会、执委会、秘书处三级机构□成。执委会负责常规运行，秘书处负责日常联络。理事会下设顾问委员会和学术委员会，顾问委员会，由与电动汽车发展相关的部委领导参加，科技部部长万钢、工信部部长苗圩、交通部部长杨传堂、财长部副部长刘昆、国家发改委副主任解振华、国家发改委副主任兼国家能源局局长吴新雄等已应邀参加。学术委员会，由徐冠华、吴敬琏牵头，由知名专家和院士出任。

理事会理事长由陈清泰担任，国家“863”计划节能与电动汽车重大项目总体专家组组长欧阳明高、中汽协常务副会长兼秘书长董扬、工信部产业政策司司长冯飞任副理事长。

industrial alliances, this club is more capable of facilitating the integration of resources at the start of the industrialization and breaking the bottleneck in such industrialization.

What is the meaning of this club?

China's electric car industry has gone for many years, but its ambitious development plan often fails and large and small industrial alliances do not play a role. Is this due to the policy? No. The relevant policies remain unchanged, including the national strategic position policy, pure electric drive tech route policy, and support policy so forth. Is this due to the market? No. When Tesla comes, it becomes very popular and produces the "catfish effect". Where is the problem? Answer: conflicting policies from different departments. Each department has its own sing each tone but does not coordinate with the other department. It is originally said that the ministry of tech and information acts as a leader but cannot command the other ministries. But its leading role fails. On the other hand, the central government may conflict with local governments in some aspects. As a result, while there is a rapid advance in foreign countries, we are still confused about in this field.

This club was set up in this context. This means that governmental ministries have a platform for deliberation and coordination. It can lead to a relatively uniform consensus and helpful for decision-making in these ministries. Or, ministries work together and spend a joint effort, so getting a better working result in the electric car industry.

This club has three levels, i.e. council, executive committee, and secretariat. The executive committee is responsible for the routine operation, the secretariat is responsible for daily contact. The council consists of the advisory committee and the academic committee. The advisory committee includes the leaders from ministries related to the electric car development, for example, science and technology minister Wan Gang, industry and information minister Miao Wei, transport minister Yang Chuantang, finance vice minister Liu Kun, Xie Zhenhua vice director of the national development and reform commission, and Wu Xinxiong vice director of the national development and reform commission and director of the national energy bureau. The academic committee, led by Xu guanhua, Wu Jinglian, includes well-known experts and academicians.

The chairman of the council is Chen Qingtai, and the deputy chairmen are Ouyang Minggao leader in national "863" plan EV major project overall team, Dong Yang executive vice president and secretary general in China Association of Automobiles, and Feng Fei director-general of the department of industry policy in ministry of industry and information.

This club brings us high expectations. It is just a simple development forum or a simple third party think-tank. China has a lot of forums, organizations, and institutions, lacks of a real forum which can play a good role in governmental decision-making.

The members of this club are closely related with the government.

高规格的“百人会”，我们有理由高期待，它不能只是一个简单的“发展论坛”、一个简单的“第三方智库”。中国汽车界不缺论坛、组织、机构，但缺的是能够对政府决策真正起作用的论坛。

“百人会”是跟政府关系最密切的“喇叭”，是离政府耳朵最近的“喇叭”，能够在中国电动车管理者步调不一致或者乱走的时候，起到一定的提醒作用。掌舵“百人会”的这批人，他们讲的话能够有人听，而且不会和利益挂钩，有较大的决策影响力。令人期待的是，“百人会”最好能够催生出一个全部统一管理电动车的政府部门——“国家电动车产业管理局”。

在国内各种电动车产业联盟风起云涌的时候，科尔尼的孙健就建议，吸收美国航空航天局（NASA）和“大飞机”的成功经验，在国务院之下建立“国家电动车产业管理局”来全面统一管理有关电动车的规划、产业政策、市场准入标准和实际推动电动车产业的发展；建立一个国家级电动车核心部件企业或托拉斯来确保中国企业在电动车产业中的领导地位。

当时，条件不成熟，这个政府机构没有成立的可能性。现在，“百人会”与其有很多的目标，不如就奔着实现一个目标——推动中国电动汽车管理一体化，在国务院之下建立“国家电动车产业管理局”。这真是功德无量！

人们期待“百人会”发展壮大，可是“百人会”的名称是“封闭”的！如今只有八十多人，不足百人；将来超过百人，该如何“会”呢？！人们期待一个“开放”的“百人会”！

They can remind the managers of electric cars in China. Moreover, these members have some impact in the public domain and have no personal interest. It is highly expected that this club may be able to lead to the creation of the unified management unit for electric vehicles, i.e. the state administration of electric vehicle industry.

While all kinds of domestic electric car industry alliances emerge, Sun Jian suggests that we should absorb the successful experience from NASA in the large aircraft. Under the state council may the state administration of electric vehicle industry be set up for the unified management of the EV, including planning, industrial policy, market access standards, and car promotion and so forth. Also, a national enterprise or trust for key parts of the electric cars may be set up to ensure the leadership position in the electric vehicle industry.

In past time, the conditions were not mature, so this club was not set up. It would the best thing that this club will spend a effort to achieve a goal of promoting China's electric vehicle management integration, in other words, under the state council may the state administration of electric vehicle industry be set up for the unified management of the EV.

We expect this club to grow stronger. This club will absorb more and more members as famous experts. Therefore, this club is alway in the open position in order to make a great contribution to the electric car industry.

China EV100
中国电动汽车百人会

全球主流电动车充电桩解析

Analysis of Main Charging Piles with Global EV

文/姜红斌 Text/Jiang Gongbin

近日，德国总理默克尔在北京出席了中德电动汽车充电项目发布会，宣布中德两国电动汽车将采用了统一的交流电充电设施通讯标准，标准统一后，中德电动汽车均可采用相同的交流充电系统进行充电。这意味着中德两国在目前火热的电动汽车行业形成了有力的战略同盟，可以发挥彼此的优势占领市场先机。

但估计大部分人不知道这究竟具体是一个什么样的标准，所以本文希望能为读者介绍一下目前市场存在的几种充电桩标准。

1.Combo 插座

Combo 插座可以允许电动车慢充和快充，是目前在欧洲应用的最广泛的插座类型，包括Audi、BMW、Chrysler、Daimler、Ford、GM、Porsche以及Volkswagen都将在未来配置SAE所制定的充□介面。而且此类插座还可以和Mennekes类型兼容。

SAE的这套标准来自很多家大汽车制造商，因此它们的目标是希望这套快充□置的充电时间能够与加油时间不相上下，那就是在DC直流电下可以10分钟□完成充电。这就需要充电站可以提供电压500V最高到200A的电流。

Recently, German Chancellor Merkel announced in Beijing that China and Germany electric vehicles would adopt the unified communication standard for AC charging facilities. After the standard is unified, then EV from both countries will use the charging system (having the same current) to do the charging. This means that the two countrie have formed a strong alliance in the EV field. Each other's advantages can play a role in the market.

At present, there are several existing charging standards in the market.

1.Combo socket

Combo socket can allow electric cars to carry out slow charging and fast charging, and is currently widely used in Europe. Audi, BMW, Chrysler, Daimler, Ford, GM, Porsche and Volkswagen the like will be in the future to install the charging interface set by SAE. This socket is compatible with Mennekes type.

This set of standards from SAE are from many big automobile manufacturers. Thus, their goal is to let the charging time of the fast charging device roughly the same as refueling time. This means that the charging station can provide 500V and max 200A.

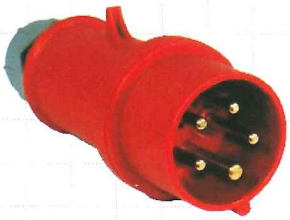
2.Mennekes type fast charging socket

2.Mennekes 快充插座

这是一种交流快充标准，也是欧盟标准体系下最信赖的第二种充电类型插座，几乎可以在所有的欧洲国家找这种类型的充电站。这种三相交流电的充电方案最高可以支持44kw的容量，是由德国Mennekes公司推出并且命名的。

3.Tesla插座

特斯拉公司的插座无疑是非常强劲的，号称能在30分钟内充满跑300公里以上的电量。因此其充电插座最高容量可达120kw, 最高电流可达80A，实乃业界翘楚。



4.CEE 标准充电

CEE插头几乎是应用的最广泛的电气插座，家庭和户外充电桩都可以使用此类12kw作用的可以提供最大32A的交流充电插座作为慢充方式。

5.CHAdeMO 快充插座

CHAdeMO是日本日产及三菱汽口等支持的插座，Chademo从日语翻译过来意思为“充电时间短如茶歇”。这种直流快充插座可以提供最大50kw的充电容量。

综上所述，中、德究竟最后采用哪种插座作为通用标准还未可知，但我们可以从德国的充电标准演变中获取的经验是：

1.快充一般使用直流，慢充使用交流。

2.交流和直流未来使用统一接口标准是趋势。

3.快充一般在半小时左右，最大充电量一般只能充到80%，以保护电池。

4.无论何种充电方式，充电桩与电动车的电池之间的通讯与信息交换至关重要。

This is a kind of AC fast charging standard, also is the second charging type socket which is most trusted under the standard system of the European Union. This type of charging station can be almost found in all European countries. The three-phase alternating current charging scheme can support a maximum capacity of 44kw, and is delivered and named by Mennekes as a German company.

3.Tesla socket

Socket Tesla is very strong. Using it, the full charge can be gotten in 30 minutes, which let the car run 300 kilometers. Thus, this charging socket has the highest capacity of up to 120kw, peak current up to 80A. It is a leading product in the industry.

4.CEE standard in charging

The CEE plug is almost the most widely used electrical socket. It can be used at home and outdoor with 12KW. In a slow charge, the socket has max AC up to 32A.

5.CHAdeMO fast charging socket

CHAdeMO socket is supported by Nissan and Mitsubishi. This is a DC fast charging socket. And it can provide the max charge capacity up to 50kw.

To sum up, which socket will be used by China and Germany is unknown. But, some facts from the evolution of the charging standard in Germany are below:

1. In general, the fast charging is with the DC, and the slow charging with AC.
2. The future trend is that AC and DC will use a unified interface standard.
3. Fast charging often takes o.5h or so. The max electricity charged is only up to 80%, thus protecting the battery.
4. No matter which charging mode, the communication and information exchange are critical between the charging pile and the EV battery.

汽车动力革命不可避免

Automobile Power Revolution Is Inevitable

文/ 郭寒冰 Text/Guo Hanbing

在工业革命以前，车辆是靠牛、马、驴等畜力及人力拉动的。在工业革命以后，车辆主要靠蒸汽作为动力拉动车辆，也有像发条一样的机械能来拉动车辆。而用石油产品燃烧作为动力是上个世纪20年代一直到现在。汽车站在自身历史发展的大门口，一场动力革命必不可免。

告别石油时代

石油又称原油，是一种粘稠的、深褐色液体，储存在地壳上层的部分地区。主要成分是各种烷烃、环烷烃、芳香烃的混合物，它是古代海洋或湖泊中的生物经过漫长的演化而形成，属于化石燃料。

石油产品污染环境，破坏环境。现在大部分的汽车，都使用石油产品的柴油与汽油作为汽车动力燃料。柴油含有很多杂质，燃烧起来产生烟尘，这些烟尘是造成空气污染的罪魁祸首。汽车尾气包括有200多种有机物，其中颗粒物固体状物质，又称粉尘；硫氧化物包括二氧化硫，三氧化硫，三氧化二硫，一氧化硫等；碳的氧化物包括二氧化碳和一氧化碳；氮氧化物包括氧化亚氮，一氧化氮，二氧化氮，三氧化二氮等；碳氢化合物包括甲烷、乙烷等烃类气体；其它有害物质包括重金属类，含氟气体，含氯气体等等，这些有机物都是有毒的，有些就是潜在的致癌物，直接损害人类健康，或对人类生存的环境产生负面影响。

汽油有毒，使人中毒。急性中毒：轻度中毒症状有头晕、头痛、恶心、呕吐、步态不稳、共济失调；高浓度吸

Before the industrial revolution, the vehicle was driven by cattles, horses, donkeys and other animal and human forces. After the industrial revolution, the vehicle is driven by steam power or mechanical energy from the clockwork-like device. From 1920s to now, the vehicle is mainly driven by the power from fuel-burning. At present, a new power revolution is inevitable.

Say goodbye to the oil era

Oil, also known as crude oil, is a sticky, dark brown liquid, and stored in parts of the upper crust. Main component is a mixture of all kinds of alkanes, cyclanes and aromatic hydrocarbons. It is a result of the biological evolution in the ancient ocean or lake, and belongs to the fossil fuel.

Environmental pollution and damage is caused petroleum. Now most of the cars use diesel oil and gasoline to provide the driving force. Diesel oil contains many impurities, and in case of being burnt, produces smoke which is the culprit causing air pollution. Automobile exhaust consists of more than 200 kinds of organic matters, of which the solid particulate is also known as dust. Sulfur oxides include sulfur dioxide, sulfur trioxide, sulfur trioxide, sulfur oxide, etc.; carbon oxides include carbon dioxide and carbon monoxide; nitrogen oxides include nitric oxide, nitrogen dioxide, nitrogen trioxide, etc.; hydrocarbons include methane, ethane and etc; other hazardous substances include heavy metals, fluoride and chlorine gases and so on. In these organic compounds, some are toxic, some are potential carcinogens, directly damaging to human health or having a negative impact on the human survival environment.

Gasoline is toxic to humans. Acute poisoning: mild poisoning symptoms include dizziness, headache, nausea, vomiting, gait instability, ataxia; high concentrations of inhaled gasoline may lead to toxic encephalopathy; very high concentrations of inhaled gasoline lead to a sudden loss of consciousness, reflective breathing stop; toxic peripheral neuropathy and chemical pneumonia may

入出现中毒性脑病；极高浓度吸入引起意识突然丧失、反射性呼吸停止；可伴有中毒性周围神经病及化学性肺炎；有些还会得中毒性精神病、吸入性肺炎等等。慢性中毒：神经衰弱综合征、植物神经功能症状、类似精神分裂症及损伤皮肤。

而且，石油属于不可再生资源，消耗殆尽后就再也没有了。石油时代页就终结了。

迎接新能源时代

汽车是人类不可缺少的交通工具，对人类生活产生了深远的影响。人类需要而且应该为汽车寻找替代的新能源。可供选择的方案有三：

一是氢气。因为氢燃烧后产生水，水分解为氢与氧，这是可以循环利用的能源。只是受制于人类的科技水平，氢不能廉价地大量生产，以供汽车动力所需。看来再过几十年后，人类能发明廉价生产氢的的“汽车装置”，只要把海水灌进“汽车装置”里，这个装置分解出氢气，然后用氢“燃烧”作为汽车动力。氢“燃烧”后又产生水。水通过“汽车装置”又分解出氢气。这样循环利用既节约能源，又保护环境。氢作为汽车动力是人类未来可采用的一种方式。

二是太阳能。只要太阳存在，就有太阳能，并且取之不尽、用之不竭，也是比较好的能源。太阳能的工作原理，是用太阳能接收装置，把太阳光转化为动能与电能，在有太阳的时候，太阳能直接转化为动能，驱动汽车行驶。在没有太阳的时候，多余的太阳能转为电能储存在电池里，这时可以用电池里的电能作为汽车动力，驱动汽车行驶。现在已经研发出的太阳能汽车，技术还有待改进，普及更须要时日。

太阳能作为汽车动力是人类未来可采用的另一种主要方式。

三是电力。电力是全球统一的！而且，所有的能源——氢、太阳能、风能、潮汐能及地热能等等都可以转化为电力！可以预见，未来一、二十年将是电动汽车的天下。用电比用石油产品环保，成本低，价格低。电动汽车代表着未来汽车的发展方向，电动汽车会逐步汰淘用石油产品作动力的燃油汽车。

任何一种新物件的普及，必须要性能良好、使用方便、售价低廉、大众喜爱，才能进入每一个家庭。电动汽车也不例外。

氢、太阳能、电都是未来汽车最主要的动力。我们见证汽车动力发展史，可以亲眼目睹新能源时代的到来，享受人类文明的进步。

occur. Some people may produce toxic psychosis, aspiration pneumonia and so on. Chronic poisoning: neurasthenia syndrome, plant nerve function, schizophrenia, and damage to the skin.

Moreover, petroleum belongs to a kind of non-renewable resources, so it will be exhausted in the future.

New energy era

Cars is indispensable to human transport, and have a profound impact on human life. Humans need to and should look for new energy resources as alternatives for cars. There are three alternatives:

The hydrogen

Because hydrogen combustion produces water which decomposes into hydrogen and oxygen. This is a recycled use of energy. Just due to the limitation by the level of science and technology, we cannot yet cheaply do a mass production of hydrogen for cars. It may be possible that, after decades, human beings can invent a cheap hydrogen production device. As long as we pour water into this "device", then it will produce hydrogen which is combusted to produce a driving force. The hydrogen is burn to produce water again. Such recycling can save energy and protect the environment. Hydrogen can be used as a vehicle power source in the future of mankind.

The solar energy

As long as the sun exists, there is solar energy which is inexhaustible. It is a good energy source. The working principle is that the solar energy receiver can convert sunlight into kinetic energy and electrical energy. At the time of the sun, the solar energy directly is converted into kinetic energy to drive the car. In the absence of the sun, redundant solar energy is converted into electrical energy stored in batteries and used as a driving force. At present, we have developed a solar car, but its technology remains to be improved and its popularization needs more time.

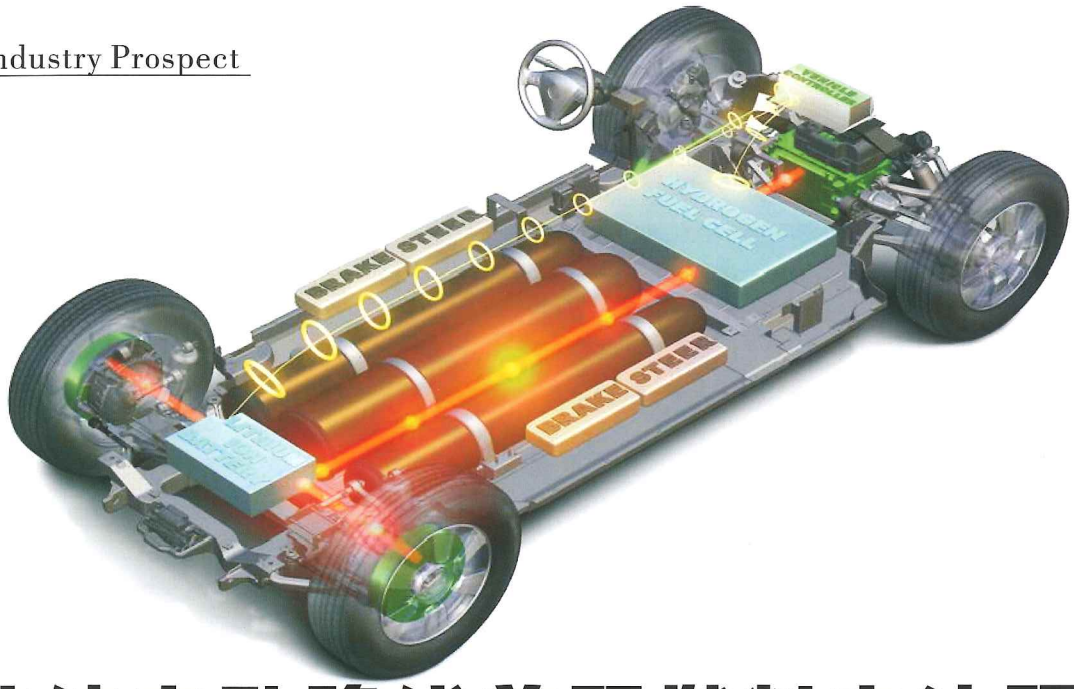
Solar energy can be used as a main method to drive the car.

The electric power

Electricity is unified in the world! In addition, all energy resources, including hydrogen, solar energy, wind energy, tidal power, and geothermal energy and so on can be converted into electricity. Predictably, the next twenty years, electric cars will very popular. Electricity is more environmentally friendly than oil products. Also, it is cheap in cost and price. Electric cars represent the development direction of future cars and will gradually replace fuel cars.

Any new thing in the popularity should be good in performance, convenient in use, low in price, and so forth. The electric car is no exception.

Hydrogen, solar energy, electric power are the main driving forces for cars in the future. We can witness the history of vehicle power development: the advent of the era of new energy. We also can enjoy the progress of human civilization.



支持纯电动路线兼顾燃料电池研究

Pure Electric Drive and Fuel Cell Research

文/ 池雄彪 Text / Chi Xiongbiao

正当我们准备举国大搞纯电动车的时候，欧美和日本却准备推出燃料电池车了。难道真的是一步落后，步步落后？国家在支持纯电动路线的同时，应统筹兼顾燃料电池路线的基础研发，毕竟这是一种更高水平的清洁能源技术，需要长期的牢固的技术积累。

中国燃料电池寿命落后欧美日本

美国的UTC燃料电池大巴的寿命可达12000小时，而丰田等燃料电池乘用车寿命超过5000小时，已经能满足商用的需求。

国际大车企的燃料电池汽车将在2015年开始商业化——标志或是丰田在2015年推出量产燃料电池车。

中国在这一领域的进展如何？中国现阶段的车用燃料电池寿命在2000-3000小时之间。上汽集团的车用燃料电池系统寿命从2008年第一代的50小时，提高到2010年第二代的500小时，2013年的第三代达到了2000小时，2015年第四代的目标则是4000小时。

国内从“十五”开始燃料电池汽车研发，在多方面取得了积极进展。包括在高性能/高稳定性抗中毒催化剂的研究，提升了催化剂的催化活性和稳定性等等。

中国自主研发的燃料电池应该很快能跨越5000小时关口，因为已经找到了问题所在，就是在发动机上应用改进的问题。

When we are ready for a great effort on doing work about pure electric vehicles, Europe and the United States and Japan are preparing to launch the fuel cell car. Does this mean that we are backward? The good choice is that, while supporting the pure electric car tech, we should pay attention to the basic research and development in the fuel cell car tech. The latter one is a kind of cleaner energy tech. We rely on the long-term accumulation of the tech.

Yi Baolian academician from Chinese Academy of Engineering

China's fuel battery life is behind that in Europe and the United States and Japan

UTC fuel cell buses in the United States can live up to 12000 hours, and fuel cell passenger vehicles such as Toyota's vehicles can live over 5000 hours. This has been able to meet the commercial needs.

International auto enterprises of fuel cell car will start in 2015, commercialization, logo or launched in 2015, production of Toyota's fuel-cell cars.

What is China's progress in this field? In the present stage, China's automobile fuel battery life is between 2000-3000 hours. In SAIC, the fuel cell system life is improved from 50 hours in 2008 to 500 hours in 2010; and it will be 2000 hours in 2013 and 4000 hours in 2015.

China began the research and develope fuel cells in the 10th Five-year period and has obtained a positive progress in many aspects, including anti-poisoning catalyst with high performance/high stability which has been improved in catalytic activity and stability and so on.

Fuel cells in China should quickly cross the pass of 5000 hours, because the problem has been found, i.e. it can be obtained by improving the engine.

2015 is the first year of fuel cell cars

2015年或是燃料电池车元年

早在2011东京车展上，丰田就亮出了其前身FCV-R概念车，此后它一直是车展的常客，今年的北京车展上也展出过。丰田计划于2015年在北美、欧洲和日本同步上市燃料电池车，年销量目标5000至1万辆。

其他国际大车企或汽车联盟的投放时间也集中在2015年—2017年。宝马因与丰田结盟，推出产品的时间同样为2015年；现代在2015年计划生产1000辆燃料电池汽车；福特、戴姆勒和日产联盟的产品将在2017年导入市场。

中国的燃料电池车此前一直处于示范运行阶段，在2008年奥运会、2010年世博会等场合亮相、试验。上汽是中国惟一产出了示范运营车辆的企业，且计划2015年推出第四代燃料电池车，实现千辆级的产量，并组建一支由55辆燃料电池车组成的车队，在全国南北方开展燃料电池车巡游活动，以提高百姓对燃料电池车的认知度。

政策需要兼顾燃料电池的基础研究

政策上的忽冷忽热是中国燃料电池车产业化部分迟缓的重要原因。目前，国产燃料电池的一些关键材料，例如膜、炭纸等，样本的测试结果已达到甚至优于国际水平，只是生产的一致性不好，还没有自动控制的生产线。但关键的问题是，中国燃料电池车的关键材料还没有实行产业化。中国的燃料电池车研发如汽车产业的发展进步一样，需要与社会的进步相结合，从技术创新到产业化来实现。

在5月初的电动汽车百人会成立大会上，中国工程院院士、中国燃料电池技术学术带头人之一衣宝廉建议国家加强燃料电池车的研发，“不能有一批人安心地去做工作。科研人员都围着钱转，特别是组长什么的，30%精力都在争取经费。五六年前，搞锂电的都去做燃料电池了；现在，很多搞燃料电池的都去做锂电池去了……现在我们国家，从领导层看，就是主张先发展纯电动车汽车。”他呼吁在国家的支持下，把燃料电池车尽快地推进到大规模示范的阶段。

国家在支持纯电动路线的同时，应统筹兼顾燃料电池路线的基础研发，毕竟这是一种更高水平的清洁能源技术，需要长期的牢固的技术积累。

In 2011 Tokyo motor show, Toyota unveiled its predecessor FCV -r concept car. It is often shown in subsequent auto shows. In this year's Beijing auto show, it was also exhibited. Toyota plans in North America, Europe and Japan in 2015, to launch the fuel cell car with the annual sales target from 5000 to 10000 cars.

Other international alliances or auto enterprises will launch fuel cell cars in 2015-2017. BMW cooperates with Toyota to launch such products in 2015. Hyundai plans to produce 1000 fuel cell vehicles in 2015. Ford, Daimler and Nissan alliance will release them in market in 2017.

China's fuel cell car has been in the stage of demonstration run. They ran in the 2008 Olympic Games and World Expo 2010 and etc. Saic is China's only car enterprise to produce the cars for demonstration run. It plans to release the the fourth generation of fuel cell cars whose number may be up to 1000. It will set up a fleet of 55 fuel cell cars parading in the north and south of the country, in order to improve users' awareness of fuel cell vehicles.

Toyota FCV concept car in 2014 Beijing auto show

Saic plug-in hydrogen fuel cell car in 2014 Beijing auto show

Policy needs to be involved in basic research of fuel cell cars.

Instable policies are the main cause why China's industrialization in fuel cell cars is slow. At present, the test results of key materials, such as film, carbon paper, and sample in China have reached or even better than the international level, except that the production consistency is not good and that there is no automatic production line. However, the key issue is that the key materials of the fuel cell car have not been industrialized. China's fuel cell car research and development should be according to the progress of the society and go through the technological innovation and industrialization.

In early may, 100-person club in the electric car industry was set up. In this the inaugural ceremony, Yi Baolian academician at Chinese academy of engineering and one of China's fuel cell technology leaders talked about the national fuel cell car research and development, "We should have a group of people to do the technical work devotedly. Now some technicians go around getting funds, especially technical leaders. Five or six years ago, many technicians did the fuel cell work; and now they turned to do the lithium cell work... now in our country, the development of the pure electric car is advocated." He hoped that, under the country's support, the fuel cell car should be pushed into the phase of the large-scale demonstration as soon as possible.

While supporting the pure electric tech line, our country should attach importance to the basic research and development of fuel cell line. The latter one is a kind of cleaner energy tech. We rely on the long-term accumulation of the tech.