國際智庫動態報導

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PERRY POISED TO LEAD RENEWABLE ENERGY PUSH

美國新任能源部長佩里準備引領可再生能源的推動

No political leader since the first Energy Secretary James Schlesinger, under then-President Jimmy Carter, has been in a position to reshape America's energy policy as much as former Texas Gov. Rick Perry.

With Senate confirmation hearings having occurred Thursday, Perry knows that we cannot postpone dealing with the threat to our nation's energy security any longer.

The Obama administration's policies have favored renewable energy sources and undervalued the importance of fossil fuels, nuclear power, and energy diversity. Instead, we need policies that are good for our economy, address concerns about the environment and provide well-paying jobs for American workers.

本期摘要(KEY INFORMATION)

◎對於川普提名的能源部長里克・佩里（Rick Perry）於參議院聽證會宣誓就職，美國企業研究所(American Enterprise Institute)學者 Mark J. Perry 認為昔日歐巴馬政府的政策有利於再生能源，然而，核電有利於經濟、環境，並為美國工人提供高薪，也是全天候提供零碳電力的唯一來源，聯邦及州層級需要更努力促進核電成長，而能源部在佩里的引導下，可刺激新一代小型模組化反應器(SMR)和進步型核電站的發展。核電廠在提供無碳電力和確保電力可靠性方面，並未獲得等同於可再生電力的評價，因此需要一個公平的能源競爭環境，有利核能與低成本天然氣和受補貼的風能、太陽能發電競爭。

◎川普規劃在上任頭 100 天刺激投資 1 兆美元在逾 10 年的基礎建設，蘭德公司(RAND Corporation)高級物理科學家 Aimee E. Curtright 與助理政策分析師 Kathleen Loa 評論該計畫預擬花費數十億美元在電網建設，特別是智慧電網，對於這種聯繫電力生產者與消費者的新式電網，政府和私營部門在承諾如此巨額投資前，應設法了解消費者的行為和決策，適應不同消費者日益多樣化的需求。新的智慧電網技術提供機會去實現具成本效益的能源產出與配給變化，從而改善當地空氣品質，並緩和適應未來的氣候變遷。找出智慧電網的最適運行方式，首要了解各種利益相關者的偏好與約束，以及技術能否順應這些目標。

Nuclear power accomplishes all three of these objectives. It is clean, reliable and affordable. Notwithstanding opposition from anti-nuclear environmental groups, it is the only source of zero-carbon electricity that is available around the clock.

The U.S. fleet of nearly 100 nuclear plants supplies 19 percent of the nation's electricity and more than 60 percent of the carbon-free power.

Importantly, the cost of nuclear-generated electricity has been relatively stable, whereas natural gas has a long history of price volatility.

The United States is now a net exporter of natural gas and its price is expected to rise as cargoes of liquefied natural gas are shipped overseas to markets in Asia and Europe.

Given the growing demand for electricity here at home, nuclear power has a critically important role to play in the years ahead.

Additional nuclear plants are needed to provide prudent insurance against possible spikes in electricity prices and shortages that could harm households and businesses, adversely affecting the U.S. economy.

Fortunately, construction is moving forward on four new nuclear plants — two each in Georgia and South Carolina, respectively. These reactors are being equipped with advanced technology that will make them even more efficient than existing power plants.

The cost of similar plants of the same design will almost certainly decline as more plants are built. New techniques in modular construction and the return of many equipment suppliers, following a hiatus in nuclear construction, make that possible.

Still, much more needs to be done at the federal and state levels to foster the growth of nuclear power.

This is where the new administration can make a difference. With Perry guiding the DOE, the agency can stimulate development of a new generation of small modular reactors and advanced nuclear plants.

Just last week, NuScale, an Oregon-based nuclear company, applied to the Nuclear Regulatory Commission for safety certification of a small modular reactor (SMR) that it intends to develop for use in the United States and abroad.

This is the first request for certification of a new reactor design in many years and it could mark the start of the next step for advanced nuclear power.

Some 20 other nuclear companies are developing designs for SMRs and advanced reactors, such as those that are cooled with liquid metal instead of water.

Although it's still in the design stage, the NuScale reactor already has a utility customer for the 50 megawatts of electricity it will generate. The Energy Department will need to do its part in ensuring there are no roadblocks

that stand in the way of the SMR's construction at a government site in Idaho.

Perry is a strong supporter of nuclear power. He can play an invaluable role in pushing for action at the state and regional levels to keep existing nuclear plants online.

Currently, a number of nuclear plants are at high risk of being shut down because they receive no value in state renewable electricity standards for their role in supplying carbon-free electricity and ensuring power reliability.

There needs to be a level energy playing field in order for nuclear power to compete against low-cost natural gas and subsidized wind and solar power. We can all think of energy reforms to improve policies.

Ultimately, it takes new leadership and a renewed appreciation for the importance of nuclear power. Hopefully, Perry will soon provide that leadership as the head of the DOE.

原始連結：http://www.aei.org/publication/perry-poised-to-lead-renewable-energy-push/

INVESTING IN INFRASTRUCTURE? DON'T FORGET THE ELECTRIC GRID

投資基礎建設？別忘記電網

One of the initiatives on President-elect Donald Trump's agenda for his first 100 days in office is a plan that would spur $1 trillion in infrastructure investment over 10 years.

Along with fixing America's dilapidated roads, bridges, transit and airports, the plan envisions spending $52 billion in taxpayer money on electricity infrastructure, with a presumed emphasis on integrating advanced "smart grid" technologies. While many consumers might see this as just another technology rollout that could be best left to the private sector and the free market, leaving the future of the electricity grid to chance should not be an option.

To maximize the potential benefits of a multibillion-dollar smart grid investment, a closer examination of smart grid technology and policy is needed.

A smart grid is an electric grid that connects electricity producers to consumers in new ways, including allowing for electricity and information to flow not just from the producers, but back to them as well. It includes the various pieces of equipment and devices that are used to produce, deliver and monitor the electricity that keeps America's lights on.

Specific cutting-edge technologies that might soon be more prominent in the electricity grid include: "smart" electricity meters and controls

that can selectively curtail consumer demand when electricity is used to avoid blackouts; distributed neighborhood-level electricity generation units such as combined heat and power systems that more efficiently use fuels; and household-scale batteries installed in individual customers' homes to back up their rooftop solar panels when the sun isn't shining.

So the term “smart grid” simply refers to an integrated and deliberate deployment of these technologies across the electricity system.

With U.S. smart grid expenditures forecast at more than $3 billion in 2017 (PDF) and the global smart grid market expected to surpass $400 billion worldwide by 2020, Trump's pledge for even further infrastructure investment in the smart grid might seem inevitable. Yet there is much that the government and the private sector should seek to learn about consumer behavior and decisionmaking before committing to such a huge investment.

For example, a common theme reiterated during a recent Smart Grid Interoperability Panel conference in Washington was that private-sector companies don't actually fully understand what consumer preferences are for smart grid technologies, nor is it clear how much consumers are willing to pay for them. The technologies are evolving so rapidly that regulatory agencies such as public utilities commissions, which are tasked with representing consumers' best interests, have been hard-pressed to keep up.

The future smart grid is likely to have ownership that spans government (through publicly owned power and transmission lines), the private sector (independent wind farms or utility-owned generators), and private citizens (household-level battery backup systems or rooftop solar panels). Yet a functioning integrated electricity system is a basic public good, essential to the health, safety and well-being of modern society. So it's in the public interest for government to take an active role to ensure success of the grid, and for consumers to be informed about choices they can make.

At the same time the environmental footprint of today's fossil fuel-based electricity system degrades local air quality, and produces greenhouse gas emissions that contribute to global climate change — meaning that a true smart grid would need to be more efficient and green than its current counterpart, not just secure, reliable and affordable.

What will constitute the best choices for the smart grid? The answer will vary from user to user, but a few basic expectations should be met. Electricity service should accommodate an increasingly diverse set of needs for different consumers. The rollout of new smart grid technology presents an opportunity to make cost-effective energy generation and distribution changes that improve local air quality and that both mitigate — and adapt to — future climate change.

Those developing new systems will need to account for multiple objectives, including affordability, security and reliability. And the United States should also take into account the development of new high-tech domestic industries — and the associated high-tech

jobs — in the process of deploying these technologies.

There will almost certainly be tradeoffs to what can realistically be achieved. Understanding how an optimal smart grid should operate starts by understanding the preferences and constraints of the various stakeholders — from multi-state utility companies to individual homeowners and industrial consumers — and understanding how technology can or cannot meet these objectives.

Without a thorough examination of all these factors, complemented by input from the public about what's important, infrastructure investments may not be made wisely and an important, once-in-a-generation opportunity could be missed.

原始連結：

http://www.rand.org/blog/2016/12/investing-in-infrastructure-dont-forget-the-electric.html