

# 6<sup>TH</sup> US–INDIA ENERGY PARTNERSHIP SUMMIT

US–INDIA: PAST COOPERATION, FUTURE STRATEGIES AND NEW OPPORTUNITIES

21 September 2015 | Washington Marriott Wardman Park, Washington DC

## SUMMIT BACKGROUND NOTE

### Context

A large majority of the Indian populace lacks access to clean and modern forms of energy and continues to cook on ill-designed, inefficient cook stoves.

The year 2015 marks the setting of the Sustainable Development Goals (SDGs) by the United Nations General Assembly for the global community as a whole. The 21st Conference of Parties (CoP) under the UN Framework Convention on Climate Change is scheduled to be held in Paris towards the end of 2015, and it is expected that a global agreement on climate change would be finalized in this CoP. In this regard, the 6th United States–India Energy Partnership Summit platform would, therefore, provide a unique platform to help lay out strategies for the future.

The 6th edition of the US–India Energy Partnership Summit will highlight the collective achievements that have been a result of this bilateral association and attempt defining the way forward. In accordance with the idea Prime Minister Narendra Modi put forth on his maiden trip to the United States in fall of 2014 “Chalein Saath Saath: Forward Together We Go”, the United States should:

- Take a long-term, value chain–based view of the opportunities that an accelerated, aggressive clean energy cooperation agenda provides not just for the two countries but for the world as a whole.

### India needs to:

- Realize its ambitious target of 100 GW of solar energy and triple its nuclear capacity by 2022, positioning itself well on a low-carbon energy pathway. This would help address India’s energy security concerns, lower pollution levels, and contribute to various SDGs. India should play a pro-active role in mitigating the challenges of climate change; it has set an example by taking ambitious pre-2020 emission reduction actions. Pursue a much more aggressive and targeted cooperation on both these fields, which will be a much larger contribution to the climate change solution that India and US can together make.

India needs concessional credit for sustainable development and green energy projects, collaboration with US Agencies for technology transfer/ partnerships for enhancing solar power and wind projects, and research & development (R&D) institutions to enhance an environment of innovation and cooperation.

## US–INDIA: PAST COOPERATION

### The Framework

*The United States and India share a rich history of energy cooperation going back to the 1950s, including the United States Agency for International Development’s (USAID’s) support for India’s first nuclear power plant at Tarapur, Maharashtra in 1969 and the launch of Department of Energy’s (DOE) deep engagement with India following then Secretary of Energy Hazel O’Leary’s 1994 Presidential Mission on Sustainable Energy and Trade.*

### US–India Energy Dialogue

As concerns of energy security and impact of carbon emissions pushed energy to the top of the US–India agenda, the US–India Energy Dialogue was launched in 2005 as a mechanism for policy dialogue and technical cooperation and an instrument to enhance mutual energy security, promote increased energy trade and investment, facilitate the deployment of clean energy technologies, and advance non-proliferation goals including the safe use of nuclear power.

The two Governments today actively engage with the Indian and American business communities to promote trade and investment in the energy sector. Activities under the *Energy Dialogue* framework is organized under six working groups—Power and Energy Efficiency; New Technology and Renewable Energy; Coal, Oil, Gas; and Civil Nuclear Energy; and the sixth, the Working Group on Sustainable Growth was added in May 2013.

### *Partnership to Advance Clean Energy (PACE)*

In November 2009, Prime Minister Manmohan Singh and President Barack Obama agreed to strengthen the US–India energy cooperation through a new *Partnership to Advance Clean Energy (PACE)* under the *US–India Energy Dialogue*. PACE is the Indo–US flagship program to work jointly on energy security and clean energy, which envisions to:

- Focus on accelerating the transition to high-performing, low-emissions, and energy-secure economiesBolster joint efforts to demonstrate the viability of existing clean energy technologies as well as identify new technologies that can increase energy access and securityFocus on engaging the private sector, local governments, industries, and other stakeholders in sharing best practices on sustainable low carbon growth.

Since its inception, PACE has mobilized significant resources from both Governments and the private sector to promote clean energy scale-up. Working under the auspices of the US–India Energy Dialogue, PACE is an inter-agency effort that combines the resources of several US agencies.

PACE includes both a research component funded by DOE and the Indian Ministry of Science and Technology—the US–India Joint Clean Energy R&D Center (JCERDC, also referred to as PACE-R)—and an inter-agency deployment component (PACE-D). In fall 2012, under the first ever joint Funding Opportunity Announcement between DOE and a foreign government, DOE and the Ministry of Science and Technology, Government of India awarded funding to the three PACE-R consortia in the areas of:

- Solar energy,Energy efficiency of buildings, and
- Second-generation biofuels

DOE and the Indian Government have each committed USD 25 million (subject to appropriations) over five years to support work by the PACE-R teams of scientists and engineers. Consortia members have pledged an additional USD 75 million in matching private funds.

## FUTURE STRATEGIES

*Major outcomes of Prime Minister Modi's 2014 US visit led to devising of new mechanisms to enhance trade and investment, particularly in infrastructure; new modalities to implement cooperation in energy, including nuclear and renewable energy; and climate change in addition to many more.*

### **The Great Indian Challenge**

Of the global population, 17 percent today resides in India with less than 1 percent of the world's oil and gas reserves and 10 percent of global coal reserves. With energy demand projected to double in the next decade, Indian imports could rise from 30 percent of primary energy demand today to 50 percent by 2030, making India one of the most energy import-dependent economies among the major global powers.

India faces some additional challenges:

- Meeting growing needs of the expanding middle class;
- Providing access to modern forms of energy to an additional 300–500 million people who have no or only limited access, while simultaneously dealing with the country's rising carbon-dioxide emissions;
- Address a huge demand-supply gap in the availability of energy, which is resulting in
  - A recourse to expensive diesel-based back-up generator systems and
  - An increasing reliance on import of fuels—not just oil and gas, but also coalInvestments in the energy sector have seen a slump in the past year due to a number of challenges, including issues around accessing India's remaining coal resources—which are in physically difficult geographies. The Government is looking at eliminating hurdles and smoothening the process

### **Make In India**

The “Make in India” campaign aims to facilitate investment, boost R&D, ensure product originality, and create skill-based jobs by establishing an industrial sector. Key labor law reforms that are in the pipeline will drive the manufacturing industry and foreign investment in India.

One of the stated goals of India's *Jawaharlal Nehru National Solar Mission* is “to create favourable conditions for solar manufacturing capability - for indigenous production and market leadership.” A clear distinction needs to be made on accessing technology and on manufacturing.

India could still access technologies from the best available sources and pay for the intellectual property associated with it, but establishing manufacturing capacities to produce ready-to-use products in India is of vital importance for inclusive growth. Moreover, while India is focusing on

manufacturing of solar cells and modules, it leaves space for a sizeable upstream value-chain; for instance, manufacturing equipment that would be required to set up such state-of-the-art production plants could potentially be sourced from technologically advanced countries such as the US. Besides, there are opportunities related to facilities that would be necessitated for quality assurance, testing, and customization. Therefore, from a long-term perspective, partnering India in the Make in India vision could prove to be a win-win opportunity for both the countries.

## NEW OPPORTUNITIES

### Way Forward

*India and the US must be open to a more balanced relationship with each side being candid on what it can and cannot do as well as being realistic about the time frame in which major changes can be accomplished. India's energy security strategy, therefore, urgently calls for enhancing investments in energy production and generation and in maximizing the use of domestically available energy resources.*

### *Liquefied Natural Gas*

India will continue to depend on imported liquefied natural gas (LNG) to meet its gas demand. Despite the open market, there is a perception that the US has a stringent licensing process and that India would benefit from greater US export volumes since they would be cheaper than imports from elsewhere. India is emerging as a key destination for US LNG exports. While US has the advantage of multiple market options, a long-term partnership will mutually benefit both sides.

### *Shale Gas*

Development of shale gas has transformed both US domestic and international gas markets. Additionally, the US has a wealth of regulatory experience at the state level that could be shared with Indian counterparts. Indian companies—the Indian Oil Corporation, Reliance Industries, and Oil India—already have stakes in US shale gas projects; having invested in commercial fracking operations in both US oil and gas fracking technology. The US government could sponsor a number of visits for high-level Indian officials and commercial concerns to major fracking regions and help to establish interaction with local and state regulators to learn more about this technology. It is for this reason that India has to act fast to develop its estimated 63 trillion cubic feet of shale gas resources with low water-based fracking technologies as well as develop its vast biomass, wind, solar, hydro, coal, and nuclear power resources while making energy efficiency and conservation the centerpieces of all its energy policies.

### *Strategic Reserves*

For some years, India has contemplated developing strategic reserves. While the caverns have been dug, they have not been filled. With oil prices likely to drop further in the short run, now is the time for Delhi to begin fast tracking the process of filling its reserves. The US has been for years managing strategic crude oil reserves and this expertise could prove invaluable to India. Likewise, if India were to join the Organisation for Economic Co-operation and Development or seek an exemption allowing it to join the International Energy Agency (IEA)—with strong support from the US—it would be eligible to join the IEA oil sharing mechanism, which could prove invaluable during a supply crisis. Membership though would also obligate India to fill its reserves and potentially in a supply crisis share them with other IEA states.

### *Nuclear Energy*

The Deal, negotiated in 2008, was designed to promote the sale of US reactor technology and then was left over a number of critical issues. Both leaders should remove the red tape and move to implement the Agreement. Both President Obama and Prime Minister Modi have reaffirmed their interest in implementation of the civil nuclear agreement.

The US engagement with India on nuclear and renewable energy—both climate-friendly energy options—has been constrained by two key issues: the nuclear liability law and the domestic content requirement/Make in India goals of the Government of India. Concerted engagement on the solutions already being considered under the nuclear liability provisions could help provide a way forward for engaging US technology providers.

### *Carbon Capture, Utilization, and Sequestration (CCUS)*

India and the US have a shared interest in further developing *carbon capture, utilization, and sequestration* (CCUS) technology to help address the air quality problems that accompany abundant fossil fuel usage. Although natural gas has become more competitive price-wise as a fuel to generate electricity in the US in recent years, it is important to note that until 2035, coal is expected to remain the dominant fuel. In India, coal usage will continue to grow since it is available domestically (though India does also import coal), is a cheap resource, and much of India's existing electricity generation capacity is coal based. Given these facts, it is vital that both nations find ways to accelerate R&D in CCUS technology to prove that the technology is both technologically and commercially viable in order to offset further air quality contamination.

### *Clean Energy*

Owing to the vital importance of increasing energy access, reducing greenhouse gas emissions, and improving resilience in the face of climate change, President Obama and Prime Minister Modi agreed to a new and enhanced strategic partnership on energy security, clean energy, and climate change in the September 2014 joint statement.

They have pledged to strengthen and expand the highly successful *US–India PACE* through a series of new programs including a new *Energy Smart Cities Partnership* to promote efficient urban energy infrastructure, scaling-up of renewable energy integration into India's power grid, cooperation in upgrading India's alternative energy institutes, development of new innovation centers, and a host of other energy efficiency programs.

Expansion of this program could yield benefits to both countries since the Government of India, under its *Green Energy Mission*, has made solar and wind power development key priorities. The challenge however will be to pick the right technologies and to define clearly the level of support that the government should provide and what incentives might be put in place for the private sector to augment the government's involvement. The US has tremendous experience in financing green energy investments and could share these with the Indian government and Indian entrepreneurs. It is also vital to determine the multiple incentives that may be required to reach the stated objectives of the overall *Green Energy Mission* including the level of investment in new engines, smart and efficient infrastructure, battery storage, and to develop innovative financing schemes.

On renewable energy, US government officials need to be much more receptive to India's ambition revealed in the Make in India campaign and evaluate the opportunities that still exist for substantial engagement by US industry.

The Summit proceedings at the 6th US–India Energy Partnership Summit seeks answers to some of the following issues on hand in Washington, DC, on September 21, 2015

- Roadmap for the convergence of India's 175 GW renewable energy vision and its "Make in India" mission: How could the US and India work in tandem to bring in the disruptive technologies and manufacturing practices to India, thereby facilitating the transformational changes in the country
- Enhanced levels of collaborative research in the frontier areas including energy storage, building systems, biofuels, and intelligent grid management techniques
- Collaboration in the field of education including joint development of clean energy–related curriculum, university twinning and networking, short-term programmes, and faculty development. Better use of information and communications technology in education for reaching out to a wider populace—such as digital learning and virtual labs—is another area that needs sharper focus.
- Development and roll out of programmes for phasing out fuel-inefficient vehicles and adoption of hybrid/electric cars
- Collaboration in the field of clean coal technologies such as carbon capture, utilization, and storage

It is important to note that all the collaborative efforts have better chances of reaching the target group if they are not limited to the public institutions alone.

## ABOUT THE 6TH US–INDIA ENERGY PARTNERSHIP SUMMIT

The sixth edition of the US–India Energy Partnership Summit themed "*US–India: Past Cooperation, Future Strategies, and New Opportunities*" will be on the heels of the Energy Dialogue between the governments of USA and India. The Summit will be a continuation of the bilateral discussions held earlier in the day. The Summit will contribute to the wide-ranging and ever-expanding dialogue architecture that has established a long-term framework for India–US engagement.

The presence of a range of dignitaries from various fields will make the Summit an opportune occasion to review and define relations between US and India—the two vibrant democracies ahead of the coining of the SDGs.

The Energy and Resources Institute North America (TERI NA) has hosted five Summits to date and each Summit has played host to a range of eminent luminaries from various fields offering sustainable pathways, best practice approaches, and technological innovations to some of the most complex issues of our time. *The sixth edition of the Summit will address various issues related to expanding the use of renewable energy and improving energy efficiency, clean coal technology, and accelerating clean energy finance.*

## ABOUT THE US–INDIA ENERGY PARTNERSHIP SUMMIT SERIES & TERI NORTH AMERICA

Year 2015 marks the 25th anniversary of TERI NA. Since it was established in Washington DC, in 1990, TERI NA has been at the forefront of setting the agenda for developing countries on a range of critical development issues. Over the years, TERI NA has emerged as the developing country's conscience for global policy makers on issues such as energy, environment, and sustainable development and has mobilized support toward these issues. TERI NA activities are focused on conducting breakthrough research and providing thought leadership through organizing summits, round-tables, workshops, and conferences to sensitize decision makers in North America to the concerns of developing nations.

One such initiative is the annual *US–India Energy Partnership Summit*. Initiated in 2009, the flagship event of TERI NA brings together senior political representatives and leading policy makers, researchers, and corporates from both countries to deliberate and create solutions toward a sustainable future. The Summit has become a prominent platform to address issues related to energy security and clean energy for sustainable development.

Distinguished speakers at previous editions of the Summit have included *Al Gore*, Former Vice-President, United States of America & Co-Founder and Chairman, Generation Investment Management; *John Kerry*, then United States Senator from Massachusetts; *John Holdren*, Assistant to President Obama for Science and Technology and Director, White House Office of Science and Technology Policy; *Carlos Pascual*, Special Envoy

& Coordinator International Energy Affairs, Energy Resources Bureau, US Department of State; *Daniel Poneman*, then Acting Secretary of Energy, US Department of Energy; *Rajiv Shah*, Administrator, USAID; *Nisha Desai Biswal*, then Assistant Administrator for Asia and Near East, USAID; and several others from the US government as well as a number of senior Ministers and officials from the Indian government.

As TERI NA commemorates the 25th year landmark, it is time to reaffirm our mission and objectives and strive for greater cooperation and collaboration between the two countries for a clean, safe, and sustainable future.

**Sources:**

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