



January 6, 2015

India US Joint Statement

Fifth Meeting of the US-India Track II Dialogue on Climate Change and Energy

On November 10-12, 2014, the US-India Track II Dialogue on Climate Change and Energy held its fifth meeting in New Delhi, India. Since its inception in 2010, this dialogue has brought together an array of prominent US and India thought leaders to explore opportunities to enhance our partnership on climate change and energy, both bilaterally and multilaterally.

With President Obama now scheduled to travel to Delhi to meet with Prime Minister Modi in late January, 2015, it is important to seize this moment to build on the progress that was made during their meeting in Washington DC in September 2014. To that end, we offer here some of the key insights and recommendations from our most recent Track II Dialogue session.

Funding for Energy Innovation and Access

Access to modern energy services, particularly electricity and cooking fuel, is a fundamental human right in the 21st century without which human development and dignity are impossible. The costs of providing modern energy to the fifth of humanity currently without access are clearly affordable by societies, both rich and poor, and there is no fundamental economic reason to wait decades to ensure universal access. The evidence is clear that providing energy access generates economic and social gains to society far in excess of the costs while also providing improvements in human dignity, health and education.

A diversity of pathways will need to be tested and refined, and government investments should be focused sharply on de-risking the necessary experimentation and scaling or replication of various approaches to providing access. As promising models emerge (including hybrid systems of combined heat and power) and are ready for replication or scaling, society should ensure that affordable finance and capital are available so that credit barriers do not slow down the rapid deployment of the most economic and effective solutions. Specifically, both governments should:

- Promote platforms such as CLEAN (the Clean Energy Access Network) which bring together stakeholders, including entrepreneurs, policy-makers, technologists and

financiers. Such platforms are essential for sharing and building on a multitude of varied experiences;

- Play an enabling role by consolidating risks across the many distributed ventures and provide financial and policy tools to provide access to low-cost global capital markets; and,
- Initiate and facilitate collaborative efforts to develop lower cost integration of systems (including storage, where necessary, and grid balancing with open source software) to secure rising efficiency in the overall operation.

New Initiative for Distributed Generation

The use of distributed generation, storage, and loads in an electricity system is fundamentally different from the 20th century Tesla-Edison grid, which relied on the paradigm of centralized generation and one-way power flow to distributed loads, with practically no storage. This grid, which started in the US in the early 20th century, has essentially been replicated around the world, including India. However, given the recent and on-going cost reductions in storage technologies, as well as in distributed renewable resources such as solar, it is widely felt that this new affordability could introduce a substantial change in the electricity system in the US and also meet the needs of electrification in India.

The key challenge, however, is not so much in overcoming the individual cost reductions of the components (*e.g.*, solar PV, batteries, etc.), which is occurring through technology innovations and market forces, but in how these components are integrated in systems - such as microgrids, individual homes, and community feeders - and operated with stability and reliability in a way that the overall cost of the system is minimized.

Given that renewable sources are intermittent in nature, a fundamentally new paradigm for the grid is needed: one that offers effective ways to control or defer loads, and that can match generation in real time and balance the grid. When this is combined with the optimal level of storage, overall costs will be significantly reduced. Introduction of electronic power management along with software to automate such systems are critical not only to operate such microgrids, but also to connect and disconnect from legacy grids when necessary.

We propose that a new joint research program on distributed generation be created between the US and India that will:

- Develop the hardware and software technologies to enable the development of microgrids, both for off grid applications as well as grid-tied ones, with the ability to (dis)connect when necessary for resilience and/or financial reasons;
- Include not only the design and operation of the electricity system, but also efforts to enable payment and billing systems when necessary;

- Be coupled to pilot and demonstration projects in the context of both Indian and US settings; and,
- Be coupled with policymaking bodies, financial institutions, as well as human capital development and business models, which emphasize and leverage value creation from electricity access.

Air Pollution and Energy

The increasing number of vehicles throughout the world greatly contributes to local and global air pollution. Globally, there are growing concerns about black carbon, which is emitted from diesel vehicles, particularly heavy trucks which contribute to global warming. In India, there are concerns about health cost of air pollution, which need to be urgently addressed. The rapid growth of vehicles and vehicle miles traveled using petroleum fuels is also a risk to energy security. India has taken some steps, including on vehicle standards, and is working to advance its fuel-technology roadmap for vehicles. There are multiple health and climate benefits to be gained from these actions.

We recommend the two countries work together to disseminate best practices to develop and support a vibrant market for electric, fuel cell and advanced hybrid vehicles, while also promoting car-free zones and alternatives to driving through public transport. As first steps in building public support for action to reduce air pollution, the two countries should work together to design and deploy a cost-effective network of monitoring stations that can be used to track current levels of contamination, identify sources, and track progress. The common objective can also work to reduce both global and local emissions of vehicles.

Cooperation on Technology

Pace-R and Pace-D 2.0

We commend the agreement made in the US-India Joint Statement between Prime Minister Modi and President Obama on September 30, 2014 to prioritize technology cooperation including through the PACE-R and PACE-D initiatives. We examined these programs in our discussions and have developed proposals for how to enhance their efficacy.

Under Pace-R, the research teams on both sides are collaborating well and producing results of value to their respective fields. However, these teams would benefit and be much more effective if the governance within and between the US and in India was better aligned. To that end, we recommend the following:

- The PACE-R senior leadership of the two governments should closely evaluate these programs by bringing together the research teams and the respective government personnel involved in program management - as well as the larger ecosystem that spans industry and business communities, regulatory agencies, financial institutions, and others who would benefit from the research - and help in realigning so that there are common goals, value propositions, and metrics of success that all are aware of;

- Funds should be set aside for project management to effectively manage the various elements of research across widely distributed geographical locations and time zones; and,
- Efforts to create incentives to work closely with PACE-D would be of mutual benefit.

The teams under the PACE-D program have been effective in working with central government agencies and states to create policy frameworks to introduce clean energy. The successful creation and implementation of these policies, however, depends on their adoption by the respective government agencies as well as, in some cases, the financial institutions which need to provide the capital to implement them. We recommend:

- Close attention be paid, with a possible re-evaluation of the effectiveness of the program, to the working relationship and alignment of objectives between Nexant, USAID, and the respective government agencies and financial institutions; and,
- The success of the PACE-D program as a whole should be oriented to measureable outcomes in terms of specific engagement and investment by the private sector.

Although there have been efforts by individual team members to create connections between PACE-R and PACE-D, there are no incentives or requirements to do so, thereby creating a gap between the two efforts. Effective ways to bridge them through demonstration and pilot projects, which de-risk new technologies, will likely enable both effective policymaking and financing.

We also recommend that any new partnerships to advance clean energy between the US and India pay close attention to creating effective mechanisms to span the range between research on one end and deployment on the other, and ensure that incentives are created for cooperation and that related value propositions are clear.

Phasing Down Hydrofluorocarbons

We recognize the opportunity for India and the United States to cooperate on a phase down on hydrofluorocarbons (HFCs) with particular attention to alternative technologies, safety concerns and associated costs.

Several companies within India in the residential and mobile air conditioning sectors are either experimenting with or are already deploying products and systems using alternative refrigerants. However, there remain valid concerns about technology lock-in, costs of multiple transitions, intellectual property, training of refrigerant servicing personnel, efficiency gains or losses, system design costs, need for standardized testing procedures, application of energy conservation codes, and recharge or recovery of scrapped air conditioning units to minimize leakage.

We emphasize that a phase down of HFCs and the use of low GWP refrigerants should be considered in conjunction with the potential of reducing emissions via aggressive efficiency standards. Therefore, we reiterate what we jointly proposed to Secretary Moniz and Deputy Chairman Ahluwalia after our February 2014 Track II dialogue meeting:

The India and US bilateral taskforce should continue to meet frequently to develop a policy framework that:

- Is technology-agnostic (*i.e.*, does not specify the coolant) and outcome-oriented (*i.e.*, provides for a continuous reduction in the global warming potential) for cooling technology;
- Ensures energy efficiency performance (*e.g.*, coefficient of performance) of the cooling technology so that cooling equipment's net contribution to greenhouse warming, taking into account the electricity input, continuously improves;
- Ensures conformity with the Montreal Protocol with no adverse impacts on the ozone layer; and
- Provides a time frame and gives a long-term signal to the R&D, industry and business communities to innovate (this is similar to the structure of US vehicle efficiency standards).

We also support using the institutions, expertise, and funding mechanisms of the Montreal Protocol to phase down HFCs, while giving Indian companies maximum flexibility over the choice of refrigerants and system designs.

Building the Partnership for Climate Resilience

We welcomed the US-India Partnership for Climate Resilience that was announced during Prime Minister Modi and President Obama's recent meeting, and look forward to engaging with both countries to help define and operationalize the partnership.

We believe that the partnership could enable a range of important activities including: collaborative research in key knowledge areas such as regional and global climate modeling on seasonal to decadal time-scales and the assessment of impacts, vulnerability, and adaptation; the sharing of experiences and lessons at local and national levels; and the joint development and adoption of technologies to support adaptation in key sectors and systems. Given India's plans for the creation of "100 smart cities", urban resilience should be a priority focus. We also underscore the importance of identifying suitable institutional homes in both countries that could serve to anchor the partnership.

Bilateral Cooperation as Catalyst for Multilateral Action

We strongly agree on the need for the US and India to intensify efforts to forge multilateral solutions to the climate challenge and to make further progress on the United Nations Framework Convention on Climate Change (UNFCCC) negotiations in order to advance that objective. Both of our countries are adversely impacted by the effects of climate change, and are taking significant steps domestically to build cleaner, more sustainable economies that meet the unique challenges that we face at our different stages of development.

These domestic efforts are enhanced through bilateral initiatives such as PACE-R and PACE-D, as well as multilateral initiatives such as the Clean Energy Ministerial and the newly launched CLEAN initiative, and efforts should be taken in the next year to further scale up this cooperation. Moreover, an effective and scaled-up multilateral response for adaptation and resilience can be a critical part of an ambitious outcome at Paris. In this regard, we see the need to identify aspects of issues, such as a global goal for adaptation, where India and the US could find common ground and could work together to advance the multilateral process.

Therefore, it is essential that our countries move quickly to launch the partnerships and carry out the actions agreed to during Prime Minister Modi's meeting with President Obama in September 2014. In so doing, we will not only be able to achieve more at home, but we will improve our capacity to engage effectively with one another in a multilateral context, including the critical negotiations under the UNFCCC.

In addition, we agree that the announcement of climate targets by the US and China – which took place during the second day of our dialogue – was noteworthy and will influence climate change discussions around the world.

This group stands ready to assist both of our governments in such undertakings in any way possible.



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US-India Track II Delegation

The members of the Track II dialogue listed below participated in their individual, not organizational, capacities. The joint statement as signed by the co-chairs captures the ideas and thoughts expressed during the dialogue. Not all views were unanimous nor were unanimity and consensus sought on all expressed findings and recommendations contained in the joint statement by the co-chairs.

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