

Role of Public Engagement in Ensuring Sustainable Energy Future for India

Vaibhav Chowdhary^{1*} Udit Mathur²

ABSTRACT

This paper presents the role that an energy calculator can play in creating a public platform for informed energy and climate debates in a developing economy. Such informed debates will allow faster implementation of energy policies for developmental and climate gains. India has recently developed its energy calculator i.e. India Energy Security Scenario (IESS) 2047 (www.indiaenergy.gov.in) based on UK's pathways 2050 calculator approach. This tool showcases how the energy demand and supply choice can impact India's energy security and also has implications on country's emissions, land usage and growth. India is currently reviewing her overall energy policy, led by Government of India's NITI Aayog. Being a net importer of energy, it faces huge energy challenges. One of the top challenges is to provide "*cleaner basic energy to all at affordable price*". In India it is still not clear whether energy is a commodity or a service hence it's difficult to say whether a policy is to be made considering pure economics or pure political principles. As per the constitution of India the conventional energy sources is a *central* subject and electricity is a *concurrent subject* i.e. both the centre and the state has a role in its development. In order to meet this objective lots of good energy plans, policies, regulations have come up in the past i.e. Electricity Act 2003, New Exploration and Licencing Policy (NELP), National Tariff Policy, Energy Conservation Act 2006, Five Year Plans etc. One thing which is common with all of these plans, acts, policies and regulations is that none of them have been implemented in its true spirit. The main reason for its non-implementation is lack of public support/ engagement for this highly politicised commodity in India. With rising awareness and education levels the public voice is getting stronger deterrent in policy implementation. This paper will be useful for all those countries that are at various stages of developing their energy/ climate calculators to realise the significance of public engagement in developing this calculator and also using public engagement as a tool to implement policies drawn out of this modelling exercise. It will provide the interested stakeholders with:

- understanding of the value of public perception, public acceptance and public engagement in delivering "Sustainable Energy Pathway (SEP)"
- identify tools in delivering change
- the roadmap to engage public for delivering SEP
- conclusions and recommendations for developing countries

Keywords: IESS 2047, public engagement, SEP, low carbon growth, Energy and Climate

1. Introduction

Like the European Union, India too is a Union

of states. The EU is a voluntary union where its nation-states maintain total political sovereignty while surrendering a bit of economic sovereignty.

¹ National Energy Adviser, Energy, Climate and Growth Unit, British High Commission, Department for International Development, UK

² Senior Advisor, Low Carbon Growth, Energy, Climate and Growth Unit, British High Commission, DFID, UK

* Corresponding Author, Phone: + 91 11 3314 3080, E-mail: V-Chowdhary@dfid.gov.uk

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In India, political and economic sovereignty are divided between Centre and the constituent states, with the balance of power veering towards the Centre. As per the constitution of India, energy is largely a central subject with Power/ Electricity being concurrent i.e. both central and state subject. This makes sustainable policy formulation and implementation very challenging. A brief snapshot of Indian energy is shown in Fig. 1. Few quick facts -

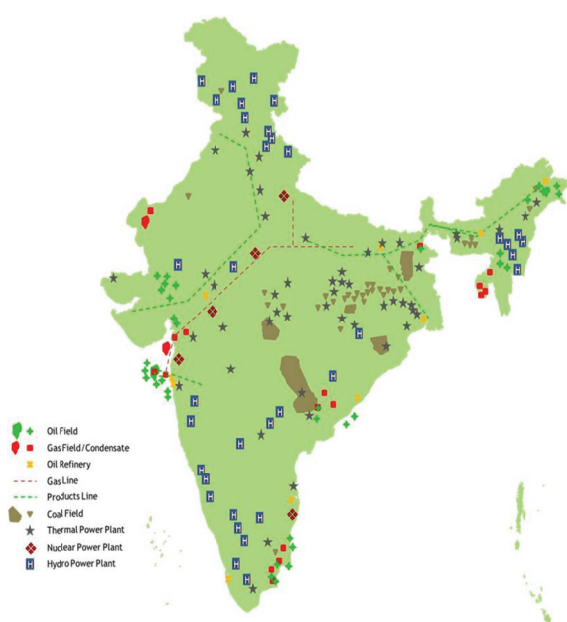


Fig. 1. India Energy Map (<http://memberfiles.freewebs.com/42/50/74975042/photos/Oil--Gas/energy-map-of-india.jpg>)

- India ranks 1st globally in terms of people without electricity access
- 2nd in population with 1.2 billion people in 2011[Census of India, 2015]
- 3rd in terms of size of the economy (on purchasing power parity basis)[GDP 2014]and total GHG emissions behind China and the US[World Resource Institute, 2014]
- 4th in terms of energy consumption[Global Energy Statistics Yearbook 2015]
- Very low in terms of its energy security and very high in terms of climate change vulnerability

On the other hand India's per capita emission is one third of world average [CO₂ emissions, The World Bank] with almost 17% of world's population. India is suffering massively from malnutrition and other developmental/ health challenges. Government of India has also recently significantly raised her renewables ambitions, making it one of the significant drivers of renewable energy markets worldwide.

India is currently reviewing its overall energy policy, led by Government of India's NITI Aayog. Being a net importer of energy, it faces huge energy challenges. One of the top challenges is to provide "*cleaner basic energy to all at affordable price*". In India it is still not clear whether energy is a commodity or a service hence it's difficult to say whether a policy is to be made considering pure economics or pure political principles. As per the constitution of India the conventional energy sources is a *central* subject and electricity is a *concurrent subject* i.e. both the centre and the state has a role in its development. In order to meet this objective lots of good energy plans, policies, regulations have come up in the past i.e. Electricity Act 2003, New Exploration and Licencing Policy (NELP), National Tariff Policy, Energy Conservation Act 2006, Five Year Plans etc. One thing that is common with all of these plans, acts, policies and regulations is that none of them have been implemented in their entirety and true spirit. The main reason for its non-implementation is lack of public support/ engagement for this highly politicised commodity in India. With rising awareness and education levels the public voice is getting stronger deterrent in policy implementation.

The NITI Aayog has recently developed the pan India energy planning tool called the India Energy Security Scenarios (IESS) 2047, based on the UK 2050 pathways calculator approach.

Snapshot of IESS is available in Fig. 2 below -

2. Relevance and benefits of public engagement in policy making

Over the last few years, a number of countries have begun to engage public *during* policy making on issues of national importance. Examples include the UK, which in its plan for Civil Service reform, introduced “open policy-making”. Examples are evident in other European countries as well; e.g.,



Fig. 2. India energy portal [India Energy Security Scenarios].

Danish consensus conferences, Swiss referenda. It is a departure from more traditional approaches, in which public engagement occurs only after the Government has determined its plans.

India might be able to reap benefits from greater public engagement during the energy policy formulation and implementation stages. This is due to the difficult choices and trade-offs involved in deciding the future energy pathway and significant implementation challenges that might be faced in delivering the revised energy policy. Possible benefits include more grounded and fair policies, greater commitment to the approaches adopted and better implementation. Some of the key advantages of public engagement on energy policy are highlighted in the Fig. 3 below -

Literature presents evidence on each of these aspects. On the first point, Heller and Rao [Heller and Rao, 2014] show that the more a decision is secured through a process of rational discussion, the closer it comes to a “common good” and hence carries greater legitimacy. Public engagement, done under right and fair conditions, can significantly facilitate rational discussions to happen.

On the second point, there is greater commitment of stakeholders to adopted approaches as it is shown that deliberations involving the

public can facilitate trust and collective agreement. Summarizing Dryzek’s [Dryzek, 2006] work on the notion of rational deliberation, Lockie points out that “what distinguishes situations where natural resources have been managed sustainably over long periods of time from those that have not is that the agencies and stakeholders involved have developed ways to communicate and interact with each other” [Lockie, 2007] This quite obviously applies to energy policy, given its strong links with use of natural resources.

Finally, effective implementation depends on buy-in by citizens. Deliberations through public engagement can secure greater commitment and thus better implementation. Recent work in the field of renewable energy choices in England, for example, has found that people are more likely to reduce their consumption of electricity if the information to do so flows from within their social networks [Dobson *et al*, 2013]. Additionally, public engagement can also help securing support from those with strong vested interests. The legitimacy of a deliberative process hinges on all participants revealing their preferences as well as their stakes in the outcome. The resulting publicity increases the costs, in both social and strategic terms, of exiting, hijacking, or blocking the process. It becomes difficult to support purely self-interested

Advantages to Citizen Participants	Advantages to Government
<ul style="list-style-type: none"> • Education (learns from and informs to government representatives) • Persuade and enlighten government • Gain skills for activist citizenship 	<ul style="list-style-type: none"> • Education (learns from & informs to citizen) • Persuade citizen, build trust and allay anxiety or hostility • Gain legitimacy of decisions
<ul style="list-style-type: none"> • Break deadlock: achieve outcomes • Gain some control over policy process • Better policy and implementation decisions 	<ul style="list-style-type: none"> • Break gridlock: achieve outcomes • Avoid litigation costs • Better policy and implementation decisions

Fig. 3. Advantages of public engagement [Irvin and Stansbury, 2004].

proposals in a public debate. The very willingness to participate in a deliberative process carries a pressure to “do the right thing [Heller and Rao, 2014].”

There are examples of how public engagement has contributed to effective policy making. The most widely adopted one is participatory budgeting – an idea that involves ordinary citizens having a direct say in shaping municipal public budgets that affect them. Starting in the 1990s in Brazil, the idea and basic blueprint of participatory budgeting have circled the world, having been implemented in hundreds of cities on seven continents. In the energy sector, a relevant example the interactive role between policy formation and community ownership in the case of Ontario’s Green Energy and Economy Act (GEEA) in 2009. Strong public engagement has resulted in province of Ontario increase share of renewable energy and completing phase out of coal.

3. The India Energy Security Scenarios – A Tool for Public Engagement on defining India’s future energy pathway

Experience across the world has shown that members of a varied cross-section of public are perfectly capable of debating quite complex issues of science, technology, and policy with which they have little day-to-day familiarity, given the right tools and sufficient opportunity to do so (Renn O, *et al* 1995; Dietz and Stern, 2008; Beierle and Cayford, 2002).

The India Energy Security Scenarios (IESS 2047) is one such tool, specific to India. It is a web tool that enables users to explore a range of potential future energy scenarios for India, for diverse energy demand and supply sectors, leading

up to the year 2047. The users can develop any number of pathways of their choice and witness implications on India’s import dependence, greenhouse gas emissions, land-use, cost to the economy etc. The tool is developed by Government of India’s National Institute for Transforming India (NITI), more widely known as the NITI Aayog.

The key benefit of the tool is its simplicity. Whilst India has different tools for understanding long term energy and emissions pathways, these are often “black box” econometric models e.g. MARKAL, MESSAGE, AIM, whose assumptions and workings are only understood by a small group of experts. Results from these are often hard to communicate outside of the expert community. Hence policy makers and civil society are distanced from evidence based policy debate.

Big issues to be dealt in India energy policy making that necessitate public engagement

To understand the real issues in which public engagement may be important, we analysed the results of different scenarios using the IESS. We list below an illustrative list of big shifts that need to happen for India to move on to an aggressive low carbon pathway

- Behavioural changes for more efficient energy use: Demand reduction alone will contribute 55% of all interventions to bring down need for imported energy and 60% to bringing down GHG emissions trajectory to an acceptable level. But this will need different types of stakeholders to be brought on board, as it involves significant behavioural changes. These changes include managing energy in industry better, constructing the commercial and residential building differently, using more energy efficient (but possible more expensive) appliances etc.

- Changing cooking fuels for vast majority of population: India will need to move a vast majority of its population from using traditional biomass to more modern cooking fuels. In the scenario we analyse, 43% of rural households switch to LPG/ PNG, 38% switch to electricity and 15% of rural households use biogas in 2047. Some of this might happen on its own, as incomes rise and supply of modern cooking fuels like gas and electricity improves. It will however, still need phenomenal engagement with rural population, who have used traditional biomass for centuries.
- Allocating/diverting land for energy projects: 3.54% of total land area will be needed by 2047 in delivering sustainable energy policy. Growing population, need for increased food production and structural economic changes such as urbanisation and infrastructure development are anyways putting severe pressure on available land resources. The Land Acquisition Act is a big political issue in India currently. Public engagement will be helpful in both choosing a feasible energy pathway as well as building greater consensus for implementing it.
- Energy bills for consumers: India may be able to raise share of renewables to 49% in the electricity mix, but that will need an additional 96 GW of gas based capacity for providing the balancing support. Cost to the economy of this would be around 15 Billion GBP. This will translate to rise in electricity tariff for consumers across categories. Public may not be very favourable to this situation. Engagement will be helpful in informing them about trade-offs, e.g. alternative pathway that is thermal energy dominated might involve less direct costs for consumers but indirect impacts through air quality impacts or energy security impacts.

- Adjustments to transport choices/aspirations: The sustainable energy pathway involves increasing the share of public transport in passenger travel to 79% by 2047, as compared to 74% in 2012. Public engagement will be key to making this happen- as it involves reversing the trend of what would happen otherwise - 180 million more households are set to join the middle class and growing affluence is known to boost preference for personal transport.

4. A suggested approach for public engagement through IEES

The vast majority of people rely on energy every day for cooking, lighting, income generation activities and mobility – but despite the fundamental role it plays in everyone’s lives, the importance of energy sector policies often fails to register with wider public. There has been much debate about what constitute favourable conditions to ensure sufficient and productive public engagement on policy matters. Dryzek (2006) develops a useful frame that involves three key tests: the communicative process must be non-coercive, capable of inducing reflection, and “capable of linking the particular experience of an individual or group with some more general point or principle”. The engagement model/ approach is highlighted in the Fig. 4 below

The strategy for any public engagement depends on the specific objectives, the scale of the engagement and the resources for it.

Objectives

The public engagement on India’s energy policy can be visualised in terms of the phase of engagement. We envisage three phases. The

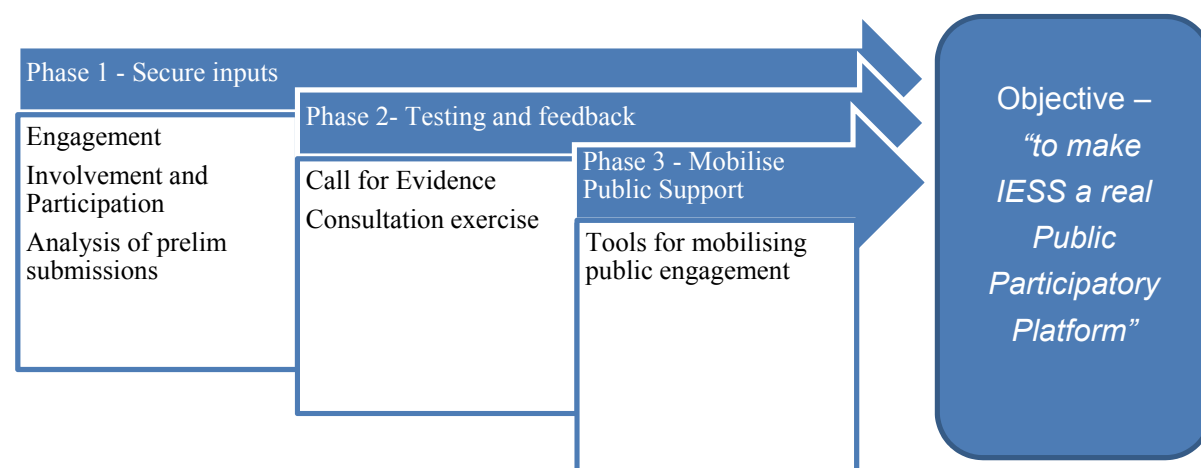


Fig. 4. Approach to public engagement using IESS (by authors)

objective of the first phase could be to secure public inputs/views on what energy pathway India should consider.

Across the three phases, we propose that “IESS be made a real Public Participatory Platform by spreading its usage to 10% of population by 2022”

Phase I: Securing public inputs/views on potential energy pathways for India:

The first phase will be when the Government of India begins the process of defining/refining its energy policy. At this stage,

Step 1 – Engagement

Encourage as wide engagement of non-energy experts as possible, since it has been shown that average citizens are the best judges of their own interests [Fiorino, 1990], and their opinions often differ from those of experts [Krimsky and Golding, 1992].

Several ways are conceivable to encourage wider public to participate. This includes outreach through media and campaigns, use of institutions such as industry associations, schools, NGOs, large corporates etc. Customised and impactful messaging will be critical to attracting people to participate, given that wider public may not automatically be interested.

Step 2 - Participative

Interested members of the public should then be encouraged to submit their own pathways through the web link. One observation though is that for average citizens to be able to define their own pathways effectively, the tool needs to provide more information in terms of

- Overall objectives of the envisaged energy policy. Some suggested ones are as follows
 - o Availability: Meeting energy demand that will be double of 2012 levels by 2040
 - o Accessibility: Providing 240 million people access to electricity
 - o Securing supplies: Managing growing reliance on imported energy through energy demand moderation, maximising tapping of domestic resources and diversifying basket of countries for imports
 - o Affordability: Making energy as a commodity having market determined prices
 - o Environmental sustainability: Limiting growth of greenhouse gas emissions to deliver on international commitments made in UNFCCC negotiations
- Impact of different policy choices on issues that directly matter to the wider public, e.g. energy prices, stress on water, air quality, food security,

and impact on Jobs and growth.

Step 3 – Analysis

It involves analysing the pathways submitted by the participants. They may be grouped under categories for analysing responses. For illustrative purposes, the possible categories are shown in Table below, but this could certainly be more nuanced. The strata is highlighted in the Tab. 1 below.

The pathways submitted by the wider public may be analysed to get a sense of the following questions [Innovate UK, 2014]:

- Are there particular scenarios or pathways which attract more support than others?
- What and where are the key trade-offs, barriers and points of inducement that raise acceptability issues for members of the public living in different contexts and how might they be addressed?
- Which processes could potentially form the basis for a social contract for rapid change?
- How do publics envision future energy system configurations and their governance?
- How do these compare and contrast with different 2020 and 2047 scenarios?
- What are the values and perceptions that inform public evaluations of energy scenarios?

Phase II: Testing and Feedback

This phase is about securing public feedback on a potential energy pathway defined by the policy makers. In this phase, the NITI Aayog will draft the sustainable energy policy, drawing on

inputs from pathways submitted by the public and deliberations within the Government. In this phase, we can run a test for the effectiveness, efficiency and buy-in of the draft policy using the IESS.

Option 1: Call for evidence

During the call for evidence the draft policy is put back for public consultation to test in case of any major discrepancy and a defined timeline should be given

Option 2: Extensive consultation exercise

The second strand involves extensive consultations with stakeholders, explaining them the policy and getting feedback/comments. In this activity, IESS could be very useful in communicating the reasons for the selected policy approach, its benefits vis-à-vis other approaches on achieving the multiple objectives for the policy and its impacts on the issues that matter to the common people, e.g. energy access, water etc. as identified earlier. IESS will also communicate wider public's preferences, as understood through engagement in phase I.

At this stage, the IESS may need to be customised to demonstrate the adopted policy approach (which may not necessarily be exactly the same as shown by the different scenarios in the current version).

Phase III: Mobilise public support for implementing the adopted pathway – The third phase will be once the policy is finalised and ready to be implemented. Two roles for IESS are envisaged at this stage

Tab. 1. Strata sampling (by authors)

Group	Strata
1	Uneducated class, rural and semi urban population
2	Leaders, Policy makers, Consultants
3	Youth, School kids, college students
4	NGO, think tanks, civil society, associations, lobby groups, researchers

One, building the buy-in of wider public for the adopted policy approach. This will include key stakeholders – legislators, state governments, specific business sectors etc. Once a strong momentum is generated in favour of implementing the adopted pathway, implementation could be much easier.

Two, versions of IESS may be developed to explore different policy instruments within each of the priority intervention areas identified under the adopted energy pathway. This is because the energy policy will provide a broad direction on aspects such as share of energy mix, demand side management, how to go about securing imports etc. Implementation of these will be through sector/intervention specific policy initiatives (e.g. on solar energy, appliance energy efficiency).

In this phase, the possible engagement tools to be used, along with the IESS are the following -

- o Technology awareness and public engagement campaigns

- o Messages disbursement campaign, FGD's, local events, community programs, regional language - posters, banners, hoardings

- o Promotional media campaigns – TV, Radio, local news paper

- o Social media - Facebook/ twitter, mobile apps

- o Programmes on energy awareness and skills

- o Subsidies and incentives schemes and policies

5. Conclusion and Recommendations

Indian public has so far not engaged with energy policy making in any significant way. The

current process of formulating a National Energy Policy provides that opportunity. It is critical to not miss this opportunity, as the public at large will only engage we are able to catch their imagination and they sense that their voice will be heard in determining the Government's course of action.

The Government of India's initiative of developing and placing in public domain the India Energy Security Scenarios tool is a welcome first step in public engagement. In this article, we have suggested a possible roadmap for using the tool more extensively and creatively. We have suggested a three phase approach. We also realise that the tool in its current version may need to be tweaked to be used effectively to reach out to the wider public and engage them. We provide a few ideas below on how it could be tweaked, though we also recognise that specific changes need to be made in line with customised engagement strategies for specific target groups and across phases.

- A relevant section that explains the users the overall objectives for the National Energy Policy may be included to enable the wider public to propose relevant pathways. We recommend that these be described simply e.g. in terms of need for increasing energy availability, accessibility, affordability, security and environmental sustainability. Putting in example pathways that link with the current Government policy priorities like Make in India (developing manufacturing base in India), 24X7 electricity to all (supplying electricity to all Indians)¹, targets for reducing energy imports etc. could also be provided to help the user understand the trade-offs.

¹ Around 250 million people in India are still deprived of Electricity and in June 2014, the Modi Government announced that it is committed to bring about transformative change in the power sector and ensure affordable round the clock (24x7) power for all consumers by 2022. Strategy roadmap to deliver this vision is - <http://www.forumofregulators.gov.in/Data/WhatsNew/24x7.pdf>

- The tool may be widened to include impact of energy choices on issues that are more directly relevant to the wider public, e.g. electricity access, impact on water resources, air quality, food security, generation of jobs etc.
- The results/headline messages of the chosen pathways may be highlighted through visuals/text – in terms of impacts on energy security etc. (that it already does), but also in terms of what will the big contributors be, what big changes in the economic structure do these imply etc. This will help the users in better understanding the implications of different scenarios of their own, and also to have discussions on merits/demerits of scenarios that others/government proposes.
- Finally, we propose that a public engagement strategy is prepared that brings out which sections of the stakeholders/public to be engaged in the different stages, the engagement strategies to be used and how best to make IESS itself more exciting and interesting (e.g. by developing gaming versions for youth).

Disclaimer

The views and opinions expressed in this paper are those of the authors and do not necessarily reflect the official policy or position of any agency of Indian or the UK government. Examples and analysis performed within this article shall not be utilized in real-world analytic products as they are based only on very limited and dated open source information. Recommendations and conclusions made in the paper is the view of the author based on his personal assessment and close association with the whole of IESS family and the broader network.

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公眾參與在確保印度未來能源永續所扮演的角色

Vaibhav Chowdhary^{1*} Udit Mathur²

摘 要

本文在探討能源供需模擬器可以在一個開發中的經濟體中扮演一個供民眾進行能源和氣候辯論的平台。此種公開的辯論將可加速能源政策發展與氣候效益的實現。印度最近以英國的2050路徑模擬器為基礎，發展了其本國的能源模擬器--印度2047年能源安全情境(IESS)模擬器(www.indiaenergy.gov.in)，這項工具展示了其對能源供需的選擇，能影響印度的能源安全，也能對國家的排放、土地利用及成長等給予一些啟示。近期印度正由政府的智庫單位(NITI Aayog)領導，進行整體能源政策的檢討。由於印度是能源淨進口國，現正面臨巨大的能源挑戰，其中之一是提供“全民可負擔的潔淨能源”。在印度，能源究竟是一種商品或是勞務並不明確，因此，到底政策制定應是純經濟性或是純政治性考量也很難說。依據印度憲法，傳統的能源來源是一個中央的議題，而電力是一個同步議題，亦即，中央與省都各自在其發展上扮演了角色。為了達成此目標，過去已提出許多好的能源計畫、政策、與法規，例如2003年電力法案、新的探勘許可使用政策、國家電價政策、2006年能源節約法案、以及五年計畫等等。這些計畫、法案、政策及法規的共通處在於其內在的精神並未得到落實，主要的理由為缺少了公眾的支持/參與這個高度政治化的商品。而隨著公眾意識及教育程度不斷地提升，公眾的聲音在政策的執行上將愈來愈具影響力。本文對那些正在開發自己的能源/氣候模擬器的國家，不論目前處於那個發展階段，都是很有用處的。可瞭解在開發此模擬器時公眾參與的重要性，並可利用公眾參與作為此模型演練中政策執行的一項工具。此外，它還可提供利害相關者：

- 明瞭公眾對永續能源路徑(SEP)的觀感價值、接受度及參與度
- 傳達改變的一項鑑別工具
- 提供公眾參與SEP的路徑圖
- 對開發中國家的結論及建議

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關鍵詞：印度2047能源安全願景(IESS 2047)、公眾參與、永續能源路徑(SEP)、低碳成長、能源與氣候

¹ 英國國際發展部高級委員會駐新德里能源、氣候與成長處國家能源顧問

² 英國國際發展部高級委員會駐新德里能源、氣候與成長處低碳成長資深顧問

*通訊作者, 電話: +91 11 3314 3080, E-mail: V-Chowdhary@dfid.gov.uk

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