



## **DIREC POLICY TRACK SUMMARY**

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There were four policy track sessions on the afternoon of October 28. Key points and messages for each are presented below.

- A. Scenarios
- B. On-grid policies
- C. Off-grid policies
- D. Local policies

### **A. SCENARIOS**

1. Many scenarios discussed show renewable electricity achieving 50-100% share of electricity by 2050, and transportation switching to high use of biofuels and renewable electricity. The main message: it will require high growth rates for these technologies, but it is possible!
2. Energy efficiency improvements are an essential part of all scenarios -- for major demand reduction as we increase renewables supply.
3. The extra costs of renewables in these scenarios were discussed. The extra costs were deemed "not much" and "feasible" by presenters, and also "misunderstood" in that there are net benefits to a renewables future, not net costs, if other avoided costs are taken into account -- including avoided infrastructure costs. The main problem is the distribution of costs among different groups or segments of society, not the level of costs.
4. Social choice and social structure also play a big role in future renewables scenarios -- and we need to think more about this issue. Also, technology choice means that we should carefully orchestrate all the different available technologies -- like a music concert conductor -- to achieve the best infrastructure development.
5. Our infrastructure clearly needs to change to accommodate much higher levels of renewables, including power grids that are much more flexible in terms of supply technologies, interconnections, and energy storage. For example, one example was that CSP with thermal storage complements solar PV very well.
6. We need a balanced and scientific based discussion about the future role of biofuels in scenarios -- the pendulum has swung from over-extreme optimism to now too much pessimism. Advanced second-generation biofuels show large promise.

7. Biomass also figures as a major energy source in the scenarios, but the main issue here is land-use, and we need to approach the issue from an integrated agricultural perspective, not a purely energy perspective.

8. There is a need for better scenarios, including more scenarios for the shorter-term (5-year or 10-year time frames), and new types of scenarios that address co-benefits much more explicitly -- incorporating co-benefits such as increased energy security and lower energy price volatility.

## B. ON-GRID POLICIES

1. As stated in the new REN21 Renewables 2010 Global Status Report, there are now 83 countries with some type of policy to promote renewable power generation -- up from 48 countries in 2004 when we met at the Bonn 2004 conference. Think about that -- the number of countries with some type of policy has almost doubled since the first "IREC" meeting six years ago. The number of countries, states, and provinces with feed-in tariffs now stands at 78 -- double the number in 2004.

2. Policies have been primarily responsible for the huge growth in renewable energy that we've seen in recent years, including the \$150 billion invested in new renewable energy capacity in 2009, up from \$20 billion in 2004.

3. We still need to overcome higher costs for many technologies and applications, so policies are still very necessary, whether R&D, subsidies and tax exemptions, import duty reductions, portfolio standards, feed-in tariffs, new promotion institutions, training and education, and many more.

4 Many policy reforms were discussed, including overcoming existing regulatory hurdles and making policies for fossil fuels consistent with policies for renewables -- "leveling the playing field," so to speak, or as someone said "don't continue to support the old while you now trying to support the new."

5. There are many examples of successful policy mechanisms -- we need to learn from them. Countries *are* learning from each other. Networks, conferences, and facilitation organizations can all help, whether at local or global levels.

6. We want policies to be carefully designed and consistent. The stability of policy frameworks is emphasized over and over. Policies should be long-term, stable, and transparent to allow private industry to respond and plan over long (several-year) time frames.

7. We are going to need new types of policies as well in the future. For example, we need to design the "electric grid of the future" incorporating smart grid and energy storage technologies and allowing for much greater flexibility to accommodate and integrate variable renewables. This is all going to require new and innovative policies.

## C. OFF-GRID POLICIES

A sizeable market for RE is for off-grid, and decentralized applications both in urban and rural settings. Policies to support off-grid renewable should aim to address the high cost of

renewable technologies, lack of awareness, need for strong operation and maintenance (O&M) infrastructure and supporting up-scaling of deployment in the market mode. The role of renewable-energy-based Decentralized Distributed Generation (DDG) systems in addressing the issue of energy security is equally important and policies must encourage the integration of DDG with grid expansion programs in developing countries.

Today, after many years of technical evolution that has provided much lower generation costs, some Renewable Technologies are considered as fully competitive, in general terms, in front of traditional sources. And other technologies will become soon also competitive.

In front of traditional electricity generators: coal, gas, nuclear, RES can be installed at different scale without a significant variation of costs. Distributed generation is a global issue that provides to these technologies a significant advantage.

In countries like India, solar photovoltaic, solar thermal, wind, biomass and bio fuels have an incredible potential according to the natural resources available.

But obviously, up to date, we have shown successful stories after the installation of different off-grid systems in India, normally at a small scale.

These systems vary from PV Solar Home Systems, even without a module on the roof (with centralized battery recharging), to hybrid mini grids that represent the future of this sustainable solution.

The deployment of RES generates local employment and industrial development.

Access to electricity has three main steps, as seen in India:

The simplest one is just the supply of solar lanterns as the Minister explained in his opening session speech. There are plans focused on this that despite being something positive represent a kind of poor past and should be improved, at least, to the second step.

This is the mentioned PV Solar Home System. Most popular one is a simple installation per house with a PV module, a regulator and a battery, together with the installation and plugs.

This kind of system provides just lighting and low consumption electrical appliances. But hardly power for any small industrial utilization.

The most effective solution comes from the combination of different technologies building hybrid small grids that can supply real power. This is a relevant step as can generate industrial development and commerce: Jobs and richness.

So, we realize that the technical problems are mostly solved or we are about it, and the generation costs, considering the formulas of "Levelized Cost of Energy" are, due to the flexibility and the elimination of the Grid Extension Costs, competitive.

So, which are the barriers for its development?

Basically a Developing Country has limited financial resources and when they establish Electricity Access Plans, they only consider the traditional way used in Developed

Countries: Big Generation Plants and Grid Extension. But now RES can make reconsider this strategy. Distributed Energy Grids, together with Storage and Smart Grids is the trend in the Developed World.

Why not in developing countries where new technologies don't have to compete with existing ones because there's nothing?

The deployment of mobile telephone in developing countries is a good example, as the old technologies have to be forgotten.

Also shows that poor people can be encouraged, becoming consumers quite quickly.

Experiences in many countries shows that once population has access to electricity at a low level, they demand more and more. And they generate resources in order to be able to pay their bill.

So, potentially the market exists. If there's a market, a part of the Governmental Plans, there's room for private investment as also seen some countries, mostly in Latin America.

The stimulation of private utilities only can be assured with a strong legal framework. Even additional funds coming from multi lateral institutions may be also importantly increased if the administrative issues are rightly structured.

Some further key messages:

- Renewable technologies are already economically competitive.
- Renewables are reliable and sustainable.
- Step by step we should move from "lighting" to "powering."
- There is a huge potential market.
- Investment funds are available if there is a stable and favorable legal framework.
- The two most important factors for deployment of renewables are (a) political will; and (b) favorable legal frameworks.

#### D. LOCAL GOVERNMENT POLICIES

Local policies for renewables are blooming all around the world -- introduce report. Of the 180 cities surveyed, almost all, 140, have some type of target for future CO2 emissions reductions and/or renewable energy shares or amounts. Many other cities have existing policies in categories like urban planning, municipal infrastructure and operations, building codes, subsidies/grants/loans, purchases of renewable power for city buildings, infrastructure, transport policies for biofuels, municipal utility regulation, and a whole range of voluntary programs. Cities and local governments have a clear role and responsibility for supporting local renewables.

The discussion centered on four main topics:

##### 1) Best-Practices for Local Policies to Promote Renewables

a. We should learn from a number of lessons and mistakes of others. At the same time, It is important to use management system and to measure own progress with a certain evaluating system. (For example, STAR community index developed by ICLEI USA)

b. We can start from single action or simple few topics, not necessarily need a comprehensive master plan at the beginning.

c. It is crucial to make a connection between environmental solutions and social-economic aspects, such as job creation and industrial transformation.

## 2) City and Spatial Planning

d. Local governments should care about the pace of development, in other words, rapid increase in population and energy needs. It is extremely critical point for metropolitan area like Delhi. Appropriate spatial planning and transportation system are needed.

## 3) Role of Micro-Finance and Consumer Credit

e. Micro finance and other financial support schemes play an important role to install renewables, but also, maintenance and operation really matters.

## 4) Capacity-Building

f. Capacity building is important to develop local skills to produce, market, install, operate and maintain sustainable energy technologies.

g. Skilled human resources are a major bottleneck, not just finance. For example, there is a lack of training for maintenance and operation of renewables in rural areas.