Report from Ukraine

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I recently attended the Second Preparatory Meeting for the 21st Economic and Environmental Forum of the Organization for Security and Co-operation in Europe (OSCE). The two day meeting was held at the Diplomatic Academy in Kyiv, Ukraine. The invitation came via Richard Wheeler, a colleague and member of the OSCE Secretariat. Topical sessions included:

1. **Strengthening co-operation** among OSCE participating States new and **renewable sources of energy**
2. **Green growth and sustainable energy** and their contribution to security
3. **Improving governance and regulatory frameworks for private investments** to promote the transition to sustainable energy
4. **Innovation and technology transfer** in the field of sustainable energy
5. Promoting security and sustainability through **partnerships for sustainable energy**

I served as moderator for the innovation and technology transfer session. It was a perfect fit for IRESN, an energy technology transfer and best practices network. My strongest impressions from the conference were:

1. The status and outlook of the 57 OSCE member states toward their energy-related environmental footprints are even more diverse than those of our 50 US states.
2. The effective integration of political, economic and technical topics in a meeting that had continuous participation by attendees from beginning to end.

Conference sessions were attended by 200 diplomats and experts from 57 OSCE member countries. The meeting and its sessions are fully documented on the OSCE website. So, this article will highlight a few main personal take-aways.

Increasing stability and security in the OSCE area through sustainable energy solutions

Stressing the importance of stronger civil society and private sector involvement, Halil Yigitgüden, Coordinator of OSCE Economic and Environmental Activities, recommended that OSCE "provide a platform for dialogue (and) the exchange of best practices and information on renewable energy."

Strengthening cooperation in renewable sources of energy

Mr. Hugo Lukas, representing the International Renewable Energy Agency, summarized the status of new and renewable energy production in the OSCE area, noting current electricity portfolios, country targets, recent reductions in feed-in tariff support (e.g. Germany, Denmark), and an on-going move toward net metering (e.g. Italy, France, UK). One of his charts, based on comprehensive studies of renewable energy costs, shows ranges of installed system costs in several countries with high on-going residential solar PV deployment. Significantly, average costs in the US (including installation) are shown to exceed those in Germany by approximately 50%.

The report containing these results includes a comment that high costs can result if "incentive schemes that are not sufficiently reactive to PV cost reductions, (i.e.) if incentives are not regularly realigned with declining PV manufacturing costs, installers and promoters can maintain high prices and achieve higher margins." This argues for caution in drawing policy inferences from cost data analysis. Relying exclusively on US or California data sets can lead to an invalid conclusion that residential PV system costs are not economically competitive relative to costs for larger systems. Scale economies can't explain large quantitative differences. Markets for manufactured products like PV panels are global, making comparative information and market insights highly relevant.

Ms. Nadia Shevchenko, representing the Ukrainian NGO "Green Dossier", provided an overview of solar development in the Ukraine that resonates with IRESN's outlook, i.e. specifically the emerging global trend toward energy system decentralization, and specific European and Ukrainian initiatives to engage civil society and local communities in practical action and local initiatives. The Ukraine has strong motivation to encourage solar deployment, relying on imports for more than 50% of its energy and having the fifth strongest scientific and technical solar potential (after USA, Japan, Germany and China).

Dr. Heinz Kopetz, representing the World Bioenergy Association, highlighted Austria's progress in biomass utilization. One of his slides is of particular interest in an IRESN context, because it shows a community using an integrated portfolio of local renewable sources. See Figure 1 below.

Figure 1: Renewable Energy Secure Community in Mureck, Austria (annual supply: 11GWh electricity, 9 GWh heat, 15 million liters biodiesel)

Mr. Peter Canciani, representing the Central European Initiative, highlighted a 2012 CEI study that explores fuel demand and residue potential scenarios for building a bio-based economy in Central and Eastern Europe. The study used next-generation ethanol as a proxy for other bio-products and may be of interest to rural communities in the US and California's central valley.

Mr. Gudni Johannesson, representing the National Energy Authority of Iceland, spoke on the use of local energy resources in sustainable urban development. The Iceland "story" makes a compelling case for the importance of public consensus in support of local energy resource development. The long term macro-economic benefits are profoundly game changing, but they require sustained and consistent policy and investment over decades. As we've learned in California, without a deeply rooted public consensus, economically efficient development of clean energy industrial capacity can be sacrificed in favor of regulatory experiments that are costly in both money and time. For those who are unfamiliar with the Iceland story, Mr. Johannesson's presentation is well worth a quick and thoughtful look.

Dr. Oleksiy Onipko, representing the Ukrainian Academy of Sciences, devoted the first part of his presentation on renewable energy safety and environmental protection to the dangers of using large wind turbines, e.g. climate effects of potential further deployment. The remainder of his presentation focused on small wind turbines, including the "Onipko Rotor". Suffice to say that Dr. Onipko's information about climate effects of large wind turbines was a surprise to me and probably difficult for the rest of the audience to evaluate as well.

Green growth and sustainability

A panel including managers representing programs of Germany, Montenegro and the UN discussed the topic, but no related documents are available. The GREENERGY initiative of the Ukraine, noted below,

targets green growth. A recent European parliamentary resolution advocates for green growth economic stimulus as an antidote and alternative to recent austerity measures. The clean energy investments of the US economic stimulus are representative of the measure that the term "green growth" encompasses.

Improving governance and regulatory frameworks for private investments

Mr. Ian Parry, representing the International Monetary Fund, spoke on the topic of fiscal policy and green growth. He argued for the environmental effectiveness of fiscal instruments, e.g. carbon and fuel taxes, in contrast to regulatory standards (e.g. fuel economy) and mandates (e.g. renewable portfolio) that miss substantial opportunities for emissions mitigation in the transport and power sectors. He closed with a measure of the economic benefit of getting (energy) prices right, i.e. direct fossil fuel subsidies totaling $400 billion in 2011 and about $2 trillion when indirect societal costs are considered.

Mr. Andrei Marcu, representing the Centre for European Policy Studies, gave a comprehensive overview of the plans, status and results of these frameworks, noting especially the lessons learned and carbon price trajectories and influences through three phases of Europe's framework development and implementation. There has been little discussion in the US about carbon emissions trading since the failure of national greenhouse gas cap and trade legislation. However, California's cap and trade framework is comparable with many emissions trading frameworks in many countries around the world and Mr. Marcu's presentation is of interest in this context.

Integrating between the two presentations, one senses a growing consensus favoring carbon taxes as economically and environmentally efficient mechanisms for emissions mitigation going forward. The US and Russia of course may remain exceptions to any future global consensus.

Ms. Darya Revina, representing the GREENERGY Initiative, spoke on the topic of creating a path for private investment in greening the Ukrainian energy economy. The issues she discussed are no doubt shared with a number of other former Soviet republics and emerging economies.

Innovation and technology transfer

The panel for this topic was asked to address emerging smart technologies, existing clean technology transfer initiatives and mechanisms, and the role of international financial institutions in promoting technology transfer and innovations.

The invitation to serve on this panel and moderate the panel's discussion was a good fit with IRESN's work. My introductory presentation covered emerging smart technologies and their importance of technology transfer and innovation in a climate context. I commented on the need for more application-oriented coverage of energy in degree and credentialing programs. I concluded that "the pivot of our energy future is the city or community that integrates its information, energy, water and waste infrastructure for sustainable economic purposes".

Mr. Luis Frauca, representing the EPISTA, an international engineering, architecture and information technology company, outlined an approach to sustainable urban planning, emphasizing supervisory

control of urban service networks in smart cities. His presentation highlighted the case of the ECO City Valdespartera, Zaragosa (SPAIN).

Mr. Seydeldyev Nurgeldy, representing Turkmenistan's Solar Institute, discussed the institute's research priorities, which emphasize autonomous and integrated rural energy systems. His presentation was in Russian, as were his slides.

Dr. Vladimir Kouzmitch, representing the engineering company ENECA and the Republic of Belarus, discussed the role of international organizations in renewable energy technology transfer. Belarus has significantly increased its reliance on domestic and renewable resources since 2005 and is seeking bilateral relationships and international donors to increase technical assistance for sustainable energy in the Republic of Belarus.

Mr. Guido Beltrani, representing the Swiss Cooperation Office Ukraine, highlighted three sustainable energy management projects his organization is conducting in the Ukraine, the largest of which seeks to improve the municipal infrastructure in the town of Vinnytsya. He also outlined success factors, challenges and recommendations to promote innovation towards sustainable energy management.

Partnerships for sustainable energy

Ms. Cornelia Schenk, representing the Austrian Energy Agency (AEA), spoke on the topic of partnerships for sustainable energy, emphasizing AEA's role as an instrument of bi-lateral cooperation fostering the use of renewable energy sources and energy efficiency measures.

Dr. Anke Stock, representing Women in Europe for a Common Future, offered a gender perspective on the role of civil society in promoting sustainable energy. She closed her talk with recommendations, one of which suggests an important alignment between decentralized energy and gender equity, i.e. "empower women economically, particularly by using the synergy effects of small-scale, decentralized projects." Political inclusivity, economic inclusivity, and decentralized energy inclusivity are threads in the same fabric, and I'll have more to say about this in the future.

Mr. Timur Idrisof, representing NGO "Little Earth", Tajikistan, presented on the topic, Energy Saving in Tajikistan. His candid and informative slides speak volumes about the challenges facing emerging economies attempting to transition from centralized, heavily subsidized and inefficiently used energy supplies in the wake of the fall of the USSR. Energy efficiency is an obvious top priority, but just about every market and institutional condition that enables successful energy efficiency initiatives is at best a work in progress.

Dr. Hamid Mehinovic, representing NGO ERERGIS in Bosnia and Herzegovina, talked about the role of NGOs in promoting energy efficiency. He spoke to the need for modernizing communal energy systems and the need to focus on small to medium size municipalities that are neglected in international know-how transfer and investments. The logic applies in the US as well and validates the mission of other NGOs, including IRESN.

Overall impressions

The OSCE conference answered questions about the potential applicability of California and US innovations to European needs. They will be applicable, though not applied in the same way according to the same rules. Likewise, I was interested in the relative strengths and weaknesses of clean energy technology transfer processes in Europe. Cooperative energy technology transfer processes have weakened in recent decades in the US and need to be re-focused on a new set of technologies and technology users. In Europe, there appears to be an awareness of the importance and demand for clean energy technical and economic integration that doesn't manifest in the US, perhaps because technology transfer within the US private sector generally works so well in support of product development and manufacturing cost reduction.

The conference also raised questions that hadn't occurred to me, i.e. about how differing perspectives on energy matters between Russia and EU countries would ultimately be resolved. Russia's current economy hinges on oil and gas production and export, while EU countries continue to work toward greater energy security. The former soviet republics are now independent, but to varying degrees and in various ways still under Russia's influence. Some, like the Ukraine, import 50 or more percent of their energy supply. Others until recently were almost totally dependent on imports and also lack industries with capacity to deliver clean energy capacity.

Finally, the conference was a reminder of the essential interplay among technology, economics and politics. Most talks affirmed the premise that renewable energy targets and deployment are essential to reducing energy-related environmental footprints in the OSCE region. However, my talk was the only one pointing to the transformative effects of technology on the energy landscape.

While diplomatic level participants mostly emphasized the broader economic policy themes, there was also an undercurrent of skepticism about the economics of clean energy in some quarters, mirroring to some extent the messaging of fossil fuel industries in the US and perhaps reflecting the economic interests of countries whose economies hinge on oil and gas revenues. The Russian Federation representative, for example, pointed to a case of a major energy efficiency mandate in Moscow that, for unforeseen reasons, failed to produce energy usage reductions.

Political themes were mostly muted, with a couple of exceptions. On the whole, the conference was unique and exemplary to the extent panelists were able to illuminate the interdependencies among technology, economics and politics. However, the time allocated to panel discussions was limited by the priority given to the reading of prepared statements by countries not represented on a session's panel.

For those interested, slides and related notes, plus a blog containing additional reflections, are posted on the IRESN website.