ELEEP Policy Recommendations For Energy and Climate Change

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Introduction

Ecologic Institute and the Atlantic Council of the United States co-organize the Emerging Leaders in Environmental and Energy Policy Network (ELEEP). ELEEP was created under the I-CITE project, which was funded by the European Union's External Action Service. In early 2012, the ELEEP Network was awarded additional support by the Robert Bosch Stiftung, which provided for two study tours and other events in the second half of the year. The ELEEP Network has received additional funding from the European Union under the auspices of the EU's "Transatlantic Civil Society Dialogues EU-USA 2012"; with this grant, Ecologic Institute and the Atlantic Council will conduct “The ELEEP Energy and Climate Dialogue” from January 2013 through mid-2014. In addition to a second round of funding from the European Union, the Robert Bosch Stiftung has also provided a second round of support to ELEEP through mid-2014. ELEEP is a dynamic, membership-only forum for the exchange of ideas, policy solutions, best-practices, and professional development for emerging American and European leaders working on or around environmental and energy issues. ELEEP currently has approximately 120 members, split between the US and the EU. ELEEP Members provide policy advice based on their experiences and lessons from different study tours addressing environment, climate and energy issues. A group of ELEEP members gathered in Brussels on 14 May 2014. The Study tour lasted from 14 to 17 May 2014.

ELEEP is funded by the European Union and the Robert Bosch Stiftung.

The ELEEP Policy Recommendations

Section 1: Energy efficiency

Recommendation I: Adopt a standards-based approach as the basic policy tool to achieving energy efficiency reductions.

Audience: Policy makers at the local, state, national/federal and international (UNFCCC) level

Issue: Market-based approaches are proving to be difficult to implement and incentivize households (in particular) and businesses to adopt efficiency measures.

Analysis: A standards-based approach is basically a command-and-control technology-forcing approach, which takes the decision whether to implement energy efficiency out of the hands of individual actors. It does, however, create demand for efficient goods and services and thus should drive costs down for these measures via learning curve effects? There is a body of evidence from the SO2 trading markets in the United States and China that suggests that standards - not markets - produced reductions in cost of technology and assured uptake of solutions.

Recommendation II: Standards-based approaches that address energy should be implemented on a full life-cycle basis.

Audience: Policy makers at the state, national/federal level and international (UNFCCC) level.

Issue: In order to provide greater flexibility in a command-and-control policy, as well as greater scope to force technology, the standards should be based on a full life-cycle basis. This enables other measures such as renewables to count towards the achievement of energy efficiency goals.

Analysis: By taking a full life-cycle approach, there is a tradeoff between simplicity of policy and permitting flexibility to achieve objectives. It transforms the basic command-and-control approach to be more market-oriented. Notwithstanding the greater complexity this introduces, the approach is likely to reduce cost for industry and permit greater innovation, and thus should achieve better results. The major issues will be accounting, which are within our capabilities to manage and in any event, should not drive solutions.

Recommendation III: A carbon emissions or intensity factor should be included within the standards criteria.

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Audience: Policy makers at the state, national/federal level and international (UNFCCC) level.

Issue: One of the problems with energy efficiency standards is that they can exhibit a rebound effect. From a climate change perspective, we care mostly about carbon emissions increasing, and from an energy security perspective, increasing fuel usage. By introducing a carbon emissions factor within the criteria, we can help control for this effect. This should further help promote renewable energy.

Analysis: This element will largely drive innovation and the scope of measures that meet the standard. It is performance-oriented and thus should drive investment and force technology aggressively.

Recommendation IV: Long-term Investment Incentives for Energy Efficiency Technology Development and Implementation

Audience: Aggressive and long-term tax credit system by federal governments to encourage development and use of energy efficient technologies.

Issue: Lack of long-term tax incentives undermines ability of industry to develop energy efficient technologies. Often developers are unable to become financially viable and recoup initial investment. The inability to become financially viable prevents long-term investment and development needed for emerging and renewable technologies to break into the U.S. energy economy.

Analysis: Best practices have shown the most effective investment incentives must be both significant, stable, and have sustainable cost distribution. One example of this type of lasting investment is Germany's use of feed-in tariffs (FiTs), which pay renewable energy generators for power put on the grid at above-market rates using fifteen to twenty-five year contracts. Investment incentives must also follow common-sense budgeting principles like cost-sharing:

- Budgets should not cause damage to other parts of the economy and should be adjusted over time as technologies grow and are less dependent on subsidies.
- One example of effective nation-wide cost sharing: in Spain, premiums for electricity generation from renewable energy sources was not strictly a public investment incentive. Rather, costs were shared by electricity consumers and the Spanish national government.

Recommendation V: There should be an unique standard for energy-efficient buildings throughout Europe.

Audience: Primarily the European Commission and also the Members States, but also the US state and local governments.

Issue: Right now, many different standards exist in Europe, such as BREEAM, LEED, DGNB, etc. To promote better energy efficiency in buildings and to guarantee certain reliability in the sector, it is necessary to commit to one standard or create a new one.

Analysis: Member State Governments should cooperate to commit to a certain standard. The economy would benefit out of that and the construction and engineering sector could better compete against traditional construction. The US States and municipalities, which often control building code regulation, should follow activities in Europe in this regard, as cities and States tend to implement their own regulations and choose differing standards for the promotion of energy efficient buildings. Streamlining and coordinating this process could result in better synergies and efficiency.

Section 2: Promoting Renewable Energy

Recommendation VI: Policy Recommendations for Promoting Renewable Energy: the Important Role of State and Local Governments in Providing Investment Incentives

Audience: Local and state governments

Issue: All levels of government play a significant role in shaping a successful energy transition. As discussed below, significant and long-term investment by federal governments is critical to supporting the types of technology development and implementation needed in order to encourage a renewable future. Yet state and local government play a key role as energy consumers themselves and as local conduits to their populations.

Analysis: State and local governments play a similarly important role. 11 U.S. states (Kansas, Kentucky, Maryland, Massachusetts, Montana, New Mexico, New York, Oregon, South Carolina, Virginia, and Washington) offer tax incentives to encourage the industrial sector to become more energy efficient. These include renewable energy tax incentives, energy efficiency tax incentives, and economic development tax incentives. This relatively low figure means there is significant opportunity for states to expand tax incentives designed to improve industrial energy efficiency. Oregon offers four different types of tax incentives designed to improve energy efficiency. Implementation of these incentives have correlated with a reduction in energy consumption per dollar of gross product statewide. Local governments have taken effective action to reduce their own carbon footprints. According to The U.S. Environmental Protection Agency Green Power Partnership, U.S. cities Houston, Austin, Dallas, and Washington, D.C. have purchase the largest amounts of green power as an alternative to fossil fuel-derived power compared to other U.S. cities. Moreover, two counties in Maryland and the City of Cincinnati, Ohio offer industrial energy efficiency tax incentives similar to those offered by the eleven U.S. states listed above. Similarly, local governments can provide much-needed tax incentives to commercial and residential enterprises who reduce their environmental impact through the installation of green technologies. These investments must be significant enough to make the technologies affordable to large portions of the population. And these incentives must last long

enough so that there is enough time for them to be marketed, installed, and implemented, in order for resulting greenhouse gas benefits to occur.

Recommendation VII: Fusion of the electricity and the heat market. Heat networks as a solution to the problems with electricity networks

Audience: Policymakers on the state level at first and then policy makers at the local level.

Issue: The Energiewende mostly focuses on electricity and power generation although a large part of energy demand is heat and not electricity. It is much easier and cheaper to store heat than it is to story electritiy. A fusion of the electricity system and the heat system could solve a lot of problems at once. For this to happen, infrastructure investments in small heat networks within a community are needed.

Analysis: Denmark is one of the few countries who are working on the fusion already and even though this also works because of very high electricity prices, it can work in other countries too.

Recommendation VIII: Solar district heating and mandatory use of at least 20% solar thermal in every biomass, waste or gas plant in district heating areas.

Audience: Local governments

Issue: Without any binding regulations or incentives there is a lot of biomass burnt during summer that could be used in a more efficient way. Solar district heating can take up at least 20% of the heat market.

Analysis: Denmark gives incentives for home owners who use the district heating facility and also supports the local solar thermal industry. This could be extended to other countries or done at the local and regional level.

Recommendation IX: Remove restrictions on the use of self produced electricity. Laws should be altered to prohibit the taxation of self-produced solar energy or other renewable energy.

Audience: European Level, US national or State level policymakers

Issue: In some countries, utilities are trying to find a way to get rid of Photovoltaic. In Germany and Austria, for example, a solar tax will be and has been implemented, respectively, which will tax the use of self produced electricity of solar power. This will prevent a large amount of business owners to invest in a PV-plant. In the US, there are restrictions on the scale of self-produced energy and also the size of installations that can be installed that also contribute to

the grid. These latter US laws should be changed to allow anyone to produce their own electricity and revisited in terms of the allowable size of such installations.

Analysis: Utilities do not have to pay for the self produced electricity. It is counterproductive to incentivize the use of reneweables on the one side and tax it on the other hand when people actually invest in the technology.

Recommendation X: Create a government-backed international energy technology equity fund and a companion debt fund as a dedicated source of capital for mid-sized energy technology deployment projects.

Audience: The intended audience is governments investigating the idea of providing concessional financing support for clean renewable energy and energy efficiency technology deployment as a means of driving economic growth.

Issue: Energy technology innovation companies are usually SMEs and are born exporters that are generally much more likely to sell their products beyond national borders than other SMEs of equivalent size. When entering foreign markets, energy technology innovation firms are often in need of buyer finance. There is a large and growing demand for small-scale sustainable energy technology deployment in emerging markets, including innovations for renewable energy, sustainable cities, rural and urban electrification, water & waste processing, energy efficiency, and others. Such projects generally require between $5 million and $25 million in debt and equity capital, an amount significantly below the hundreds of millions financial institutions seek to deploy in infrastructure investments but above what angel investors and other initial sources of capital will provide. This sizing mismatch creates a financing gap that prevents energy technology companies from reaching their full international market potential.

Analysis: An “international energy technology equity fund” could provide investment capital for projects that fall in the above-mentioned $5 million to $25 million range, while a companion debt fund – led by the private sector but backed by a sovereign guarantee to reduce the cost of capital – could provide additional leverage for the energy technology innovation equity investments.

To address this, exporting governments could adopt an aggressive energy technology innovation export policy as a tool for strengthening the late-stage energy innovation investment picture. Governments could work closely with their export finance institutions – such as the Export-Import Bank of the United States (EXIM), Export Development Canada (EDC), the European Investment Bank (EIB) and others – to explore the idea of extending sovereign guarantees targeted to incentivize investment in homegrown energy technology innovations.

This policy will work because it will drive confidence in deployed technologies, and this validation is critical to long-term success. Projects that depend on technologies mature enough to generate consistent cash flows will attract follow-on private investors and debt providers once they have demonstrated this stability.

Section 3: Promoting Transit-Oriented Urban Development

Recommendation XI: Significant expansion of public-private partnerships to build complete neighborhoods and livable urban environments.

Audience: State and local governments, private companies

Issue: Public-private partnerships are defined as a contractual agreement between a public agency and a private sector entity which leverages the assets of both entities in order to deliver a service or public benefit. These partnerships play a crucial role in building complete neighborhoods and livable urban environments with access to public transit.

Analysis: Agencies and cities cannot create transit-oriented communities on their own. However, typical challenges to developing transit-oriented urban development include:

- Land ownership: government agencies may lease land, instead of selling outright, to developers, which affects financing rates available to developers.
- Slow review times by state and local agencies
- Delays in construction and safety reviews
- Challenges in marketing developments once complete

Local governments can address these challenges through:

- Assistance with pre-development costs, which may increase if zoning or design issues delay review by local agencies
- Funding for specific project components tied to permitting, such as infrastructure development, land acquisition, and eminent domain.

Examples of successful large-scale public-private partnership include:

- The City of Portland, Oregon Pearl District streetcar line used public-private partnership to build a streetcar to a previously underdeveloped part of the city, in exchange for a residential land owner agreeing to increase the number of housing units in the area.
- The partnership resulted in 10,000 units of housing, 25% of which is affordable, 4.6 million square feet of commercial space within blocks of the street car, and record number of city-issued building permits.

Recommendation XII: Strengthen urban cycling share by establishing cycling highways and infrastructure, implementing public bike sharing (schemes) and promoting cargo bikes.

Audience: Mayors, politicians on a local / regional level

Issue: Towns and cities are characterized by being dense; dense in terms of people living there, the amount of employers, the diversification of people, businesses, cultures, etc. More and more people worldwide tend to live in cities. This is a challenge and opportunity at the same

time. The challenge is how people can move from A to B within the shortest possible time. The Opportunity is, in everything being close together. Motorized traffic can be left behind and a concentration on environmental friendly and energy efficient transport modes is possible . No cars are needed in urban environments – every journey could be done by public transit, cycling and walking. Cycling has an especially high potential, because it fits perfectly for medium lengths travels (5km), is a cheap, simple, space-saving and a healthy form of travelling.

Analysis: Cycling cities such as Copenhagen and Amsterdam show, that a real increase in cycling share can only be achieved by a bundle of infrastructural and awareness raising measures. It is highly important to have fast and sufficiently proportioned cycling highways (e.g. in London). Furthermore bike sharing schemes in larger and medium sized cities may help to promote cycling and bring people to do their daily travels by (rental) bike (good example is the city of Seville in Spain). Special bikes, such as pedelecs, folding bikes and especially cargo bike broadens the use of cycling, for private persons (children transport, grocery shopping) as well as businesses (courier travels) (e.g. used in Nordic countries such as Copenhagen).

Recommendation XIII: Utilize intelligent transport systems (ITSs) as a medium to improve multi-modal mobility in towns and cities.

Audience: Transport planners / Urban planning authorities

Issue: One main challenge in transport politics is that more and more people rely on different transport modes when doing one single journey. Intermodal transport is a future development and another trend is that less people own their own vehicle but use them by sharing and pooling models. Large cities such as Beijing in China show, that with individual mobility (private cars) the urban traffic system comes to its boundaries in terms of space (traffic congestions), pollutants (fine dust), noise, segregation, etc.

Analysis: Intelligent transport systems evoke high expectations when it comes to solve traffic problems in urban environments. By the use of intelligent information and communication technologies in transport, traffic can be controlled in a more efficient, ecological and secure way. Traffic warning systems, apps for planning public transit travels, city tolls (congestion charges) are examples how to influence traffic in cities. ITSs are highly important for passenger transport as well as for the transport of goods.

Recommendation XIV: E-mobility including busses, trams, E-cars, E-scooters and pedelecs as a part of transforming the transport sector.

Audience: Politicians, planners, NGOs, businesses

Issue: Our current transport system, specifically the automobile-dependent part of our transportation systems, is based on fossil fuels. Fossil fuel engines are not very efficient and large contributors to emissions and climate change. All car producers are responsible to change their technologies and invest in hybrid and electric technologies. Within the EU certain fleet

targets to reduce CO2 emissions have to be fulfilled by 2020, in order to avoid financial punishments. E-mobility is an opportunity to reduce emissions, noise and fine dust in towns and cities.

Analysis: After a great hype about 5 years ago on electric mobility, followed a disappointment concerning the change of technology in car industry now is the time, where E-mobility is predicted to be *the* future technology and is starting to gain broader interest. Reliable vehicles are on the market (by producers such as Nissan, BMW, Renault, VW) and different countries start to subsidize E-mobility and to punish fossil fuel cars. In Norway for example, conventional cars are taxed so highly, that even the high end Tesla E-vehicle is gaining a large market segment. In Estonia a dense infrastructure of fast-charging stations was established and the purchase of E-vehicles is highly subsidized. The EU has targets to increase the fleet of electric and hybrid cars until 2020 by a significant amount. E-vehicles (also buses, scooters (Asia!) and pedelecs (E-bikes) are more energy efficient than fossil fuel vehicles. They also create new industries as well as new jobs. E-mobility furthermore brings the possibility of changing people's mobility behavior to a more intermodal and less energy-consuming mobility.

Section 4: Addressing the Water-Energy-Climate Nexus

Recommendation XV: Development and Implementation of Environmentally Sound, Scale-able Desalination Technologies

Audience: Federal and state governments in the United States and Mexico.

Issue: High energy costs of desalination remain a barrier to large-scale implementation of the technology. The process of removing salt from seawater uses more energy per gallon than nearly any other water supply and treatment, with significant greenhouse gas emissions. These barriers to desalination should be mitigated to the maximum extent possible due to the significant environmental and economic consequences of current water shortages in large population and agriculture centers.

Analysis: Technology advances over the last forty years have reduced energy requirements of desalination significantly. However, additional funding is needed in order to develop and implement these technologies at a scale which will have a significant impact on energy requirements of the desalination process. This should include increased energy efficiency of desalination technologies as well as development and implementation of other renewable energy technologies to reduce overall energy consumption. Renewable technologies need not be directly linked to desalination plants in order to reduce GHG emissions. Development of effective renewable electricity technologies will allow desalination plants to either be powered directly by renewable electricity or to offset energy use with renewable electricity produced on other parts of the grid. Locations with desalination and renewable infrastructure already in place or under development, such as California and Israel, are ideal candidates for accelerating development of desalination by reducing energy use and greenhouse gas emissions from desalination facilities.