A New Approach to Energy Planning

In this article, Morton Blarke introduces the concept of "phronesis" and argues that energy planning should be based on interaction between stakeholders and planners.

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In June 2004, Malaysia's Economic Planning Unit (EPU) invited an international team of energy planners to assist in producing a new long-term energy plan for Malaysia. The immediate objective was to analyze energy-related environmental and economic problems and opportunities, while building capacity within energy planning with selected Malaysian institutions.

This article illustrates an operational energy planning framework that was developed as part of this work, and which may be a useful reference for future planning projects. The framework stresses the importance of allowing context and problem-orientation to define the course of the planning process.

The article also offers some thoughts about why energy planning frameworks and models should aim at becoming better at supporting social interaction.

Photo: Morten Boje Blarke

Sharing the energy cake during an energy planning workshop

PHRONESIS AND SOCIAL INTERACTION

In recent years, energy planning models such as LEAP, which was used in Malaysia, have become particularly good at allowing participants to develop knowledge of the techno-economic characteristics of energy systems.

Central in this effort is the idea that a techno-economic rationality is instrumental in proposing policies for society's development. While the goals are given by the values of those who either hire the planners or are negotiated within the planning group, the planning is guided by the idea that a goal-oriented rationality is a good platform for social engineering.

However, even as far back as the ancient Greeks, it was recognized that techno-economic knowledge (epistime and techne) was necessary, but not sufficient, for making judgments about right or wrong, good or bad. Aristotle introduced the notion of phronesis, meaning practical wisdom, as a prerequisite for enlightened technological and social development. Aristotle suggested that a context-dependent understanding of values was necessary for obtaining a balanced approach to development, and that this understanding would not come from techno-economic studies alone, but even more so from an experienced understanding of values and interests.

Still, many efforts in local and national energy planning are detached from reality and so do not provide sound judgment. Phronesis requires interaction between the general and the concrete, between model and reality. In order for energy-environmental planners to provide sound judgment, they are required to have experience about the concrete. A crucial part of this experience comes through social interaction. Therefore, if planners become better able to understand, plan and manage the process of social interaction, then planners will become better at supporting plans that promote particular ethics and values, such as the concept of sustainability.

What are the lessons for energy planning? One is that more time and resources need to be devoted to the social interactions that take place in the planning process, whether in local communities, in research, in government offices, and in energy markets.

Can social interaction be more systematically explored, stimulated, planned, and managed as an integral part of the energy planning process? This will require that our attention should be on making our planning tools better at stimulating and managing interactivity. How may planning tools, like LEAP, become better platforms for interactivity, for example by better supporting interaction between planners and the physical world?

It may even be useful to introduce a new concept in energy planning, namely "Interactive Energy Planning": one that suggests that extensive interaction is the basis for acquiring practical wisdom and thus is the primary

ingredient for sound and realistic decision-making.

INTERACTIVE ENERGY PLANNING

Frameworks for integrated energy planning have been developing since the early 1970s and have been used to promote the rationality of "integration" and "sustainability". They were a reaction to an array of short-sighted, non-democratic, and destructive plans that primarily were fulfilling the financial and political interests of well-established stakeholders, while ignoring the wider interests of society.

The focus on "interaction" emphasizes that each phase of the planning process should be organised primarily as an interface for interaction with the objective to acquire practical wisdom in context. In fact, social interaction allows planners to experience and study the institutional and economic trails of power, thereby preparing them to answer five fundamental questions in planning:

- Where do we stand?
- Where are we going?
- Who gains and who loses, and by which mechanisms of power?
- Is this development desirable?
- What, if anything, should we do about it?

The interactive energy planning framework identifies ten such interfaces for interaction, which are presented in table 1.

Table 1: Phases within an interactive energy planning framework*-1

Interface	Mode of Analysis	Objective
0	Context Analysis	Explore external and internal contexts
1	Problem Analysis	Analyse problem complex
2	Goal Analysis	Identify planning goals
3	Reference Situation	Picture current situation
4	Reference Scenario	Picture likely development
5	Analysis of Options	Compare supply/demand options
6	Alternative Scenario	Picture alternative development
7	Scenario Analysis	Compare scenarios
8	Decision Analysis	Prioritize policies and instruments
9	Policy and Action	Strategic intervention, political change

Figure 1: The Interactive Energy Planning framework*-2

Figure 1 illustrates this as a circular process of analysing problems, objectives, trends, options, instruments, policies, and strategies for intervention. Aside from dealing with techno-economic issues, this framework emphasizes two analytical elements that enable planners to understand concrete decision-making. The first is the study of context. The second is the study of power: winners and losers.

The idea in interactive energy planning is that this understanding develops in the interface between an external and an internal context. And that it is being developed by means of interaction. For example, when establishing a Reference Situation, by interacting with stakeholders such as utility companies, local governments, and the manufacturing industry, planners are also developing an understanding about how such a system came about, and who is benefiting from the current situation. Ultimately, the hypothesis is that through interaction, decision-making is widely influenced.

The external context may be said to constitute the object of analysis (the world), while the internal context (the planning team) constitute the subject of the analysis. How can planners more effectively deal with and relate to such knowledge? In this respect, it may prove useful to have a look at how the methods and tools currently used in energy planning may effectively support interaction within context.

MODELING TOOLS THAT SUPPORT INTERACTION

In Malaysia, LEAP assisted professionals and institutions to exercise various understandings about energy-related technical and economic problems and opportunities. In the process, through experimentation, dialogue, and negotiation, common rules about what was "good", and even a consensus understanding about where the energy sector seemed to be heading and the

extent of future problems, was reached. Also, the involved professionals developed an understanding, primarily based on techno-economic reason, that particular priority options should be promoted in order to address the problems. These options were well researched and documented through case studies and demonstration projects. For example, priority options included efforts on the demand-side, like revised building codes, as well as the promotion of solid biomass use in industry replacing fuel oil.

LEAP helped the participants to structure the techno-economic aspects of this research. For questions beyond the scope of techno-economics, other tools and methods were applied, including participatory visioning, policy workshops, technical experiments, and case studies.

The Malaysian case tends to make a story of rather good practice in planning research and the planning process was well anchored within decision-making institutions. But did it result in "good" decision-making?

The immediate outcome is not very encouraging, as the most current information from Malaysia indicates. In the Malaysian mass media, on the streets, and in parliament, the option to invest in the wide-scale introduction of palm-diesel in transportation is receiving much positive attention. While this option was investigated by the planning team, it was also rejected as a feasible option, on at least three counts: the Government could not support extensive use of palm-diesel without massively increasing fiscal subsidies to transport fuels, palm-diesel would further promote a non-sustainable form of mono-culture in agriculture, and finally, other more cost-effective options for reducing fossil fuel use in transportation exist, including the introduction of fuel efficiency standards.

Despite this knowledge, large-scale manufacturing and supply of palm-diesel, as well as even an expensive programme on fuel cells, are new major energy policy initiatives, which are likely to be central elements in the Government's new energy policy.

What are the mechanisms behind such seemingly irrational decisions? And why it is so difficult to get institutions involved in demand-side efforts?

By acknowledging that rationality and power are analytically inseparable from each other, and with the end goal of "good" decision-making in mind, energy planning tools and methods will need to do better in supporting planners in dealing with not only techno-economics, but also interactivity, context, and power.

In LEAP, there is a fuel database, but it could be usefully supplemented by country-specific organisational databases, as well as localized directories of policies, legislation, market information, funding opportunities, and journalists in energy and environment. Similarly, LEAP provides a technology database, but no database describing institutional designs that are good in supporting demand-side efforts, or instruments for public intervention.

In LEAP, the energy sector is broken down into demand, transformation and resources, but it would also be useful to support the charting of institutional relations by sector, ownership, and flow of funds. In this respect, the specification of costs could allow for an analysis of winners and losers, for example in terms of fiscal costs and revenue losses for utility companies in efficiency scenarios.
How would such changes support the concept of "Interactivity" or even "Interactive Energy Planning"? Well, by not allowing techno-economic reason to stand alone in planning research, it would help planners to integrate the analysis of rationality and power. Energy planning tools, and LEAP in particular, have improved tremendously, but the time won in operation should not be spent on making more "exact" utopias, but rather on interaction in context, exploring the mechanisms of power. The concept of interactive energy planning should inspire planners to spend less time in utopia, and more time at the waterfront becoming familiar with the basis for sound and realistic decision-making through interaction in context.

*1. The objective for each phase is primarily to establish an interface for interaction. For more information on these phases see: http://www.plan.aau.dk/~blarke/downloads/publications/24-REM-chapter-23.pdf

*2. As contexts, problems, and goals are recognized, the team sets out initially to describe the current situation and likely future developments. The evolving system model becomes the basis for analysing alternatives and identifying feasible options

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