

# Better financial regulation could make energy organizations more sustainable

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The search for sustainable energy systems will not be easy. It doesn't matter whether the technology is energy efficiency, bio-energy, nuclear, fossil or hydropower. The amount of political change required is immense. We might be tempted to compare the changes we need to the US Apollo Program to put a man on the moon during the 1960s. But what we need now is not technical concentration on a small niche (like space science) but rather

. . . a commitment to take what we already know how to do and somehow spread it into every corner of our economies, and indeed our most basic activities. It's as if NASA's goal had been to put *all of us* on the moon.

(McKibben 2007; emphasis added)

Energy efficiency (EE) should be the top priority. In Thailand, it costs about half (or even less) of the cost of new large hydropower supply (du Pont 2005). In China, EE costs one-third to one-quarter the cost of new coal (Moskovitz 2005). The California regulator has declared EE a top priority resource, to be implemented ahead of new power purchases (California Public Utilities Commission 2005). California's private electricity utilities will be required to secure all cost effective energy savings (Fogel and Hall 2007). The EU is likewise trying to elevate the importance of saving energy.

Energy efficiency and many renewable energy options may cost less than large fossil or hydropower systems, but that doesn't mean they will be implemented. This brief focuses on regulatory reform as a way to get energy efficiency on the agenda of energy organizations (utilities).

To begin we need to recall that powerful social forces act against sustainable energy. Energy is not just an input or service to final well-being, but a business in its own right. Some energy projects are driven by the ability to make short-term financial gains, e.g., by obtaining rights to public assets, channeling them into a corporation, and later selling shares to investors through an initial public offering (see Dore, Yu Xiaogang, and Li 2007 for the case of Yangtze Electric Power Corporation).

Next, people have sharply different perspectives on what is sustainable and not sustainable economic activity. Most developing nations have no problem promoting and celebrating double-digit GDP growth. Citizens and governments in rich countries would be thrilled to see just five percent annual growth, because their economies are already so much larger and demographics less dynamic. But of course these numbers say nothing about long-term sustainability.

A third challenge is that different energy technologies (or policies) produce different winners and losers. It is easy to push a preferred option if one is willing to ignore all the social and political complexity. Some believe the solution is higher energy prices, implemented through new energy taxes (carbon taxes) that incorporate all the damages of energy production (the externalities). But in the short term this will hurt industrial workers, for example in the low-profit, energy-intensive Chinese aluminum industry (French 2007). It could also hurt poor consumers.

A few countries are more willing than others to tolerate higher energy taxes. But for most politicians this would be unacceptable. Others believe the solution is to slow down economic growth, if necessary by having central banks raise interest rates:

In the face of rampant inflation, it makes sense for the US Fed to hike rates now and engineer a hard landing for the US economy. . . . A few million Americans will be thrown out of work, but so what - they weren't necessarily working on anything except selling each other inflated housing anyway . . . A hard landing for the US economy will help cut global carbon emissions, by a factor of over 10%, so why not engineer it? . . . With a bulk of the world's manufacturing now in Asia, a shift in consumption to the region would not be a bad thing . . . overall shipping emissions will decline because goods will be consumed closer to the point of manufacture.

(Chan Akya 2007)

This kind of discourse might work (for some readers) as social critique. But it's too arrogant to work as policy prescription.

A fourth challenge to energy sustainability involves the need to work at several different scales. For example, hydropower projects have a long project cycle. Many projects are already moving forward. Even if not all of these are strictly needed to meet electricity demand, they are already underway. There is much work to do to improve project design and avoid serious environmental and social impacts.

A final challenge, related to the above, has to do with the difficulty of meaningful participation in energy and infrastructure planning (Foran 2006; 2007).

When thinking about less unsustainable hydropower, or more sustainable systems, it helps to keep the big picture in mind. What is sustainable consumption? How can business people be encouraged to build more responsible projects? What would today's power holders find politically acceptable? How can we reduce the conflicts between different groups of poor and vulnerable people? The Hydropower And Energy Working Group tries to keep this larger picture in mind (Table 1).

**Table 1 Transition to sustainable energy: some key challenges**

Issue	Example of M-POWER activities
Pace and scale of regional and global economic activity	Promoting energy efficiency as a top priority resource (Foran 2007) Hydropower expansion analysis and critique (Dore, Yu Xiaogang, and Li 2007)

Issue	Example of M-POWER activities
	<p>Newspaper op-eds on ethics of energy (Palang Thai)</p> <p>Theory development on sustainable production and consumption systems (Lebel 2004; Lebel et al. 2006)</p>
Power of private sector developers	<p><i>Improving Hydropower Investment</i> is a new project (USER, Palang Thai, International Rivers, Griffin) we propose to work cooperatively with private sector actors to explore application of two sets of voluntary codes of conduct: International Hydropower Association and Equator Principles</p> <p>International Rivers research on Chinese hydropower investors (International Rivers and Rivers Coalition Cambodia 2008)</p>
Political acceptability	<p>Advocacy for <i>incremental</i> changes to existing policies and institutions, e.g., demonstration project for IRP (integrated resource planning) in Thailand</p> <p>New proposal for a regulator and civil society study tour to promote progressive regulation</p>

The rest of this brief focuses on challenges posed by the broader policy framework.

### **Regulatory governance**

Many readers are already familiar with the term governance, but what is regulatory governance? Simply put, it refers to control and guidance of private sector activity (the market) by state and non-state actors (see Fig. 1 below).

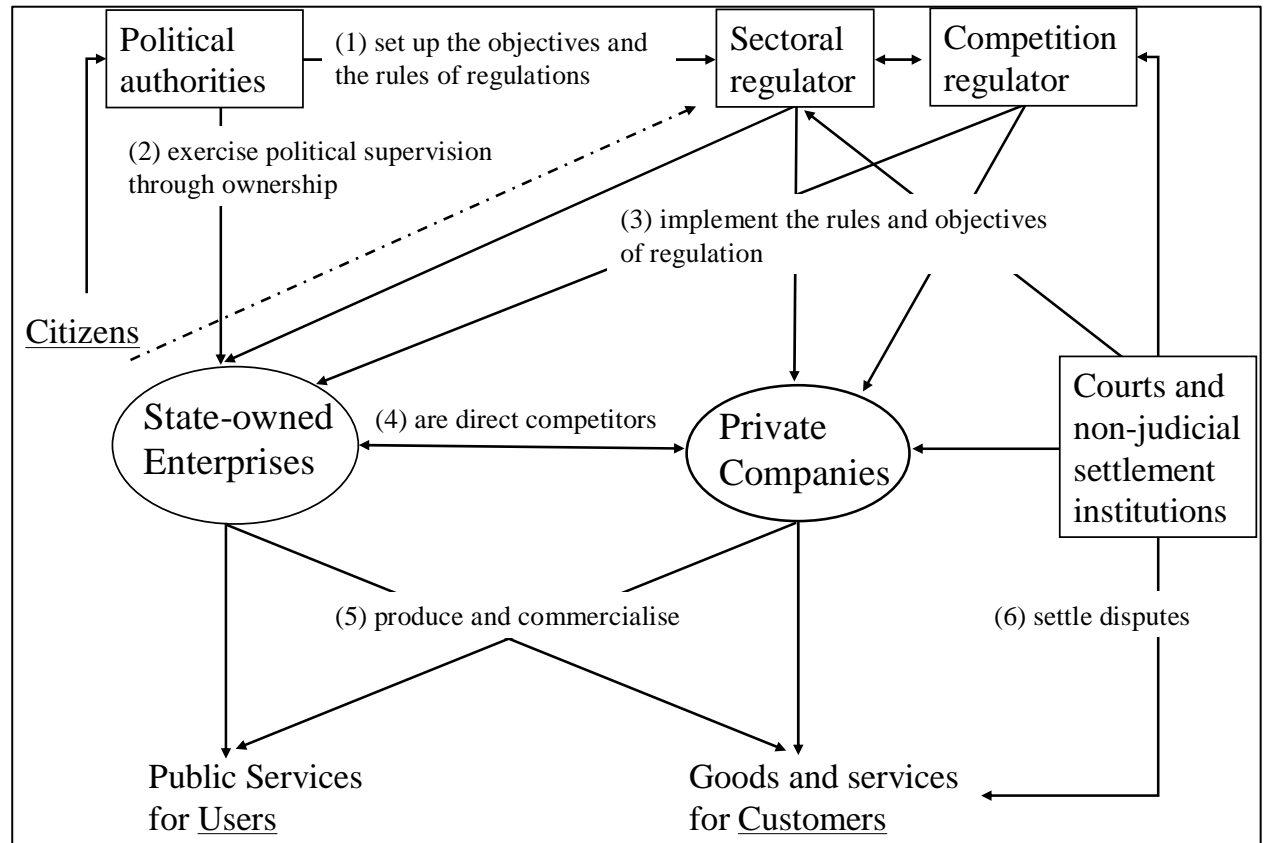
Economics students are often taught that markets are free-standing automatic machines that can work outside society and politics. But in fact, markets are institutions – that is social systems with rules and practices. For example, without adequate standards and practices, a market could allow goods to be bought and sold that are dangerous, or should not be traded at all. Or it could give unfair power and advantage to some players, leading to higher costs for society as a whole (e.g., through corruption).

The modern electricity supply industry has long been organized around the belief that it is a natural monopoly, that is, that one organization could supply all of the final demand more cheaply than a number of competing organizations. But this argument has been increasingly questioned as technology has changed, and as the environmental and social cost of large, centralized power stations become more apparent to societies.

Since the 1980s, a huge effort has been underway to increase the role of market institutions, in industries that have previously been under government control. Neoliberals believe that this will lead (as a rule) to more competition, greater efficiency, and lower costs for the end-consumer. But outcomes really depend on how social relations between sellers, buyers, and other affected people are regulated.

A modern concept of regulation (often taken from experience of the USA since the late 19<sup>th</sup> Century) includes: (1) dividing “policy making” from “regulation;” (2) setting up one or more independent regulatory authorities. These are accountable to government, but also independent from it. Independence is important so that business people will not fear that the regulator will use its power unfairly.

**Figure 1. Actors and processes of a regulation framework**



Sources: Adapted from (Finon and Mittun 2004). Dashed line shows citizen use of the regulator as a venue to set policy agendas.

Non-state actors such as insurance companies, auditors, industry associations, and NGOs are also involved in “regulation.” Although not shown in Figure 1, they are important (Hutter 2006).

Ideally, regulation involves balancing the key interests of the consumer (e.g., reliable energy services), the supplier (full recovery of its costs, a stable policy environment), and that of society (e.g., controlling environmental and social impacts of energy production).

But in practice, the agenda of the regulator is often quite narrow. Regulators get assigned duties like dispute resolution between energy organizations, tariff setting, and third party access to the transmission network (Finon and Mittun 2004; Praipol and Puree 2007). Setting access rules and technical standards is important so that renewable energy suppliers can connect to the grid without discrimination. Tariffs can be set to include environmental and social costs.

However if interest groups lobby the regulator vigorously to protect themselves from hikes in energy rates, then a short-term focus could result. Regulators also need models for long-term sustainability. When government policy leadership is inadequate, civil society can push for and help develop those models.

*Perverse incentives of energy organizations are major obstacles to sustainability*

Energy utilities in the region operate as virtual monopolies. While obligated to serve all customers, they also have the privilege of earning a profit on their investments. Under a traditional model, all utility costs are periodically submitted for review to the regulator, and if approved, the organization will be permitted to recover its costs, plus a profit margin, by passing them on to captive customers. Utilities face a number of anti-sustainability incentives:

- \* Each unit of electricity [KWh] a utility sells, no matter how much it costs to produce or how little it sells for, adds to earnings.
- \* Each unit saved or replaced with an energy efficiency measure, no matter how little the efficiency measure costs, reduces utility profits.
- \* No matter how cost effective, purchases of power from cogeneration, renewable resources, or other non-utility sources add nothing to utility profits.

(Adapted from Moskovitz 1989)

These destructive incentives are called “throughput” incentives. Unless they are directly addressed, utilities clearly have little incentive (beyond public reputation) to cooperate on energy efficiency and renewable energy. They have little reason to implement integrated demand and supply least-cost planning (see M-POWER 2008: Session 2F).

So what to do? Who needs to get involved? It’s clear that removing negative financial incentives involves a new policy framework. Change will not come without policy makers willing to study alternatives to rate-of-return regulation.

Civil society has played a key role. Independent analysts with technical training have set up non-profits to help speed up the adoption of energy efficiency and renewable energy. Influential analysts and organizations include Art Rosenfeld (ACEEE – American Council for an Energy Efficient Economy), David Moskovitz (Regulatory Assistance Project), Amory Lovins (Rocky Mountain Institute), and in Thailand, Chris and Chom Greacen (Palang Thai).

NGOs representing electricity rate-payers have also played a key role. In California and Illinois, NGOs were involved in important pressure campaigns against large price increases caused by construction overrun or operating malfunction at nuclear power plants. In the California case, voters in the city of Sacramento resolved to shut down Rancho Seco nuclear plant in 1989. The difference was compensated by energy efficiency, solar hot water heating, and hydropower (Heiman and Solomon 2004).

Experts and citizen activists influence decision making, through different, but often complementary pathways (Foran 2006).

More pro-sustainability policy is needed, as well as more creative regulation. Institutional re-designs can be done incrementally. Table 2 shows a number of increasingly complex regulatory options.

**Table 2. Financial regulation options to support energy efficiency**

Actions / Method	Examples
(1) Program cost recovery. Allow utilities to recover the costs of their program spending on energy efficiency.	EGAT at present
(2) Performance incentives.	<p><i>Shareholder incentive mechanism: Seven states in USA (AZ, CT, MA, MN, NV, NH, RI)</i></p> <p>If achieve targets, utilities <u>receive a percentage of total EE program cost as reward</u>: AZ, CT, MA, NH, RI</p> <p>Utilities allowed to earn <u>increased rate of return</u> on energy efficiency investment: NV</p> <p>Utilities get to keep a share of the overall net EE program benefit: MN, CA (previously)</p>
(3) Revenue recovery. Allow utilities to adjust their gross revenues to make up for lost energy sales	“Revenue decoupling”: USA, eight states (CA, OR, MD, NC, OH, UT, NJ, NY); Canada (Ontario)

Sources: (Kushler, York, and Witte 2006; Swisher, Jannuzzi, and Redlinger 1997)

Cost recovery is essential, but not particularly ambitious. The US has more experience implementing performance incentive systems than revenue decoupling (Kushler, York, and Witte 2006). Decoupling has been criticized by some interest groups as promoting mediocrity.

Regulators in rich OECD countries have worked on fixing perverse utility incentives since the mid-1980s. In the 2000s, NGOs (Natural Resources Defense Council and Regulatory Assistance Project) proposed that the Chinese government consider revenue decoupling. The issue was raised with policy makers at the National Reform and Development Council, the top planning agency.

But there has been almost no public discussion of this issue in the Mekong Region. Later this month, the World Resources Institute will organize a forum on clean energy, governance, and regulation. It will target Asian regulators.

Recently, M-POWER partners have submitted a proposal for funding that would allow us to try to work more closely with the Thai regulator.

## Conclusion

The search for less unsustainable energy systems is complicated because of “big picture” social forces. These include the power of business sector, the short-term perspective of politicians, as well as entrenched ways of thinking (such as the rate-of-return model).

Better regulatory governance requires re-design of financial incentive systems, so that utilities don't stand in the way of energy efficiency and integrated planning.

In 2008, M-POWER's Hydropower and Energy Working Group ([www.mpowernet.org](http://www.mpowernet.org)) will explore opportunities to improve regulatory governance. We welcome your suggestions and look forward to doing some good work together.

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