

Chinas Energy Policy between Plan and Market

Working Paper

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Abstract and overview

Premier Wen Jiabao announced a vigorous energy saving plan while delivering the Report on Government Work at the opening meeting of the Fourth Session of the Tenth NPC in March 2006. As China has become one of the key actors for the world's energy development, this announcement is being widely welcomed. The question that arises is, whether China's energy policy will achieve its objective, and will help to create the "resources saving society" that China's leadership has proclaimed in 2005 necessary to achieve the desired economic development in the long run.

This research article deals specifically with China's recent energy policy, its successes and, in some cases ineffectiveness or risks. It is based on the experience of the author as close observer of China's energy policy during 6 years. Instead of giving an account of this experience, the author tries to put it into relationship with the research on China's institutional development, thus making it a research paper instead of a report.

The general research hypothesis is, that institutional arrangement matter

As much as the policies are in line with institutional arrangements of the relevant sectors, the better they work. The transition to market economy requires another type of policies, if it creates new organizational sets and other allocation mechanisms

In order to make the argument, this article first describes briefly the present institutional arrangement and environment of the system relevant to the energy policy, which reaches well beyond the energy supply sector. It indicates the institutional changes which have occurred here in the transition from planning to market economy socialist

Then it tries to trace institutional changes in the procedures of formulating, decision making, implementation and enforcement of energy policy in China.

Against this background it characterizes some energy policy measures and programs of the last years as well as their first impacts. Successes and weaknesses are discussed and their respective institutional causes or respective policy inadequacies .

conclusion is,

1 The institutional arrangement and environment of the energy sector

The present institutional arrangement and the existing set of organizations playing on the energy supply and the demand side (terminology according to North 1990) resemble their counterparts in industrialized market economies. Although they have changed significantly within the last decade, they have been evolved from the planning economy system and are not entirely new creations.

In the original planning economy, the energy supply sectors used to consist of vertically integrated organizations for coal, electricity and oil under the leadership of the respective ministries. Every function required for the particular supply chain was carried out within that structure, beside the core functions like energy production and distributions also the planning and design, capacity building and other auxiliary functions. Within the respective unit, even social functions for the employees like housing were provided. The industrial and transport sectors the largest energy consuming sectors were organized in a similar way.

Separation of sector policy and operations, disintegration into formally independent organizations, introduction of competition and partial privatization or market entries of new private organizations have visibly transformed the energy system

1.1 The State's executive powers

The organizational set of the energy sector is dominated on the central level by the National Development and Reform Commission (NDRC), one of the big five ministries of the State's executive arm. Under the State Council, NDRC is the leading body in energy policy. NDRC has the formal competence not only for energy supply policy, which is organized in one department called Energy Bureau, but also for policies regarding energy consumption and its efficiency, located in the Department of the Environment. In addition, it hosts the office for the coordination of climate control policy (ONCCCC), as well as appointed Designated National Authority (DNA) for the Clean Development Mechanism (CDM), in its regional department. Relevant to the energy sector are also other departments within the NDRC such as Transportation. Other relevant authorities within NDRC deal with energy pricing, investment and international credit approval.

Within the executive arm of the Government, other ministries and State Administrations participate in energy policy activities, formulating, implementing and enforcing related political measures (for more details see Suding 2005) .

- The Ministry of Science and Technology (MOST), whose competence goes beyond basic research to promote new energy consumption and supply technologies; MOST cooperates rather closely with the NDRC not only in energy research but also with respect to sustainable development (Administrative Centre for China's Agenda 21, or ACCA 21) and is an integral part of the climate control policy (Office of Global Environmental Affairs)

- The Ministry of Construction (MOC) which is politically responsible for construction and urban development but also district heating and gas supply as well as road transportation.
- The Ministry of Agriculture (MOA) which is responsible for rural industry (Town and Village Enterprises – TVA) and non-electric rural energy.
- The Ministry of Water Resources (MWR) which operates a large number of small hydroelectric plants and electrical island supply grids..
- The Ministry of Commerce (MOFCOM) and the Ministry of Foreign Affairs(MOFA) that have a say in energy policy, with the rising importance of international issues,. The Ministry of Finance (MOF) must also be mentioned as a source of important publicly funded programs.
- The State Environmental Protection Administration (SEPA) which combines functions of an Environmental Ministry and Control and Supervision agency

These organizations are all members of the Energy Leading Group, created in 2005 under the chairmanship of the Premier. The State Council under the State Premier has made energy a priority issue and is dealing with it frequently. The Leading Group for Energy is supposed to coordinate better the relevant players and improve the overall performance of the government in the energy sector, after the costly experience of the electricity supply crisis and in view of the coming energy supply security challenges. This new arrangement curtailed somewhat the dominance of NDRC in the energy sector even though the operational office was located with the Director of the Energy Bureau. NDRC remains in the driver's seat of China's energy policy, although it is watched very closely and has to follow frequent instructions from the State Council.

1.2 The legislative powers and energy

1.2.1 The National Peoples Congress

Laws can be made only by the National Peoples Congress (NPC), which is the constitutional legislative arm of the State. The NPC 's Committees are increasingly interested in energy matters. Indeed, the NPC has dictated the Renewable Energy Promotion Law in 2005 and is considering revisions of the Electric Power Law and Energy Conservation Laws from the 1990s.

Characteristically, the laws emitted by the NPC are of a rather general nature. They describe general principles, set obligations and rights and enumerate potential policies, but refrain from concretizations. Thus, they leave considerable space for regulations to be decided by the government.

During its annual plenary meetings the NPC uses its supervisory function and exerts increasing pressure on the government who has to report and also to respond to observations on energy developments. In energy and environment matters, the NPC's relevance has clearly increased.

1.2.2 Commissions' and Ministries' normative powers

The Commissions and Ministries led by the State Council have in addition to executive powers also some legislative powers. They can dictate regulations within the legal framework. Within their respective competence, they also emit notions and circulars in which they inform on measures which have a binding effect on agencies and offices

1.3 Regulatory and supervisory agencies

A new player with high relevance for the energy sector was created with the new government of 2003, created State-Owned Assets Supervision & Administration Commission (SASAC). SASAC is tasked with supervising the management of state-owned enterprises (SOE). It thus executes part of the ownership function of the State in a comprehensive and coherent way. Most of the enterprises active in the energy sector are still State Owned Enterprises SOE. Operationally, the business of energy supply was separated from the ministries already in the second part of 1990s.

Also in 2003, a new type of agency with a new kind of function was introduced into the set: the State Electric Power Regulatory Commission (SERC). SERC is supposed to execute the regulatory function in the 2003 reformed electricity sector, where competition was introduced in generation, while monopolistic structures prevail in the networks.

Notwithstanding the new agency, supervisory and approval functions with respect to investment, pricing, and international credit in the NDRC have not been adjusted. There is an overlap in the functions with respect to the electricity sector and therefore potential conflict.

1.4 The operational and service functions

1.4.1 Energy supply

Since the reform process began in the 1990's, the government has effectively left micro operations to enterprises in the energy supply sectors, even if the vast majority of assets is still state owned. The respective SOEs are operating with increasing degrees of freedom in decision making within increasingly in competitive markets.

Genuine private companies participate in a growing share however not yet significantly in energy supply. The large energy sector SOEs have themselves transformed into holding corporations which allow them to create affiliated private shareholder companies, in which they keep controlling stakes

In 2005, most of the electricity generation, although operating formally in competition, is still provided by a handful of SOE holdings plus numerous producers with more or less public ownership share. Electricity transmission and distribution of businesses is

operated by two regionally separated holdings, State Grid Corporation and Southern China Grid Corporation, owned by the State or Provinces. These are holdings of numerous provincial and local electricity utilities and other companies.

The Chinese oil industry is dominated by 3 SOEs which are becoming more and more vertically integrated and deal with production, imports, refineries, and wholesale. These companies also control the upstream part of the gas market, whereas the gas supply downstream is in the hands of local mostly municipal owned utilities. In the coal sector, there is still a large number of mine operators, ranging from very big to very small ones, for the most part belonging to provincial, municipal or other local governments, but also private. (for a more detailed account see Suding 2005)

The reforms have eliminated the monopolistic structures in the energy supply market, except for the electricity networks, and led to narrow or wider oligopolies. There seems to be some latent competition, which will become effective for electricity and coal, once the current sellers' markets become equilibrated. Regional monopolies prevail in the electricity grid, wholesale and retail operations.

With increasing diversity in the sectors, the industry associations are becoming more relevant. Besides the long standing trade organizations for the electricity, coal and oil sector, also RE industries have recently set up industry associations.

1.4.2 Energy consumption

In the energy system the consumers are important players. They determine the final demand for energy sources like coal, oil, gas and electricity not only with their energy service needs. In fact they also operate energy transformation equipment which produces the energy services they need and sometimes can share them with other consumers. Thus the organizations in the industrial, transport, commercial and public sectors and even the households determine with their energy service demand and their internal conversion technologies the structure and amount of energy sources consumption. Thus, they are becoming increasingly relevant for energy policy issues.

Institutionally, Chinese industry, which is by far the most important energy consuming sector, has been transformed from being the production arm of a planning economy and being directed by the State, to a multitude of enterprises which operate in a market economy and enjoy independence in their decisions which they can base on market signals and opportunities. However, State and party influence in the industry is still strong, in particular in the large SOEs but also in the many local level companies and town and village enterprises (TVEs). The collaboration between significant enterprises and government is particularly close on the local level in what scholars call the Local State (according to Lin 2001). These business objectives reflected in the local government may run counter to enforcement of such State policies, which they regard as obstacles to growth like environmental and energy efficiency standards.

In the transport sector, the other large energy consuming sector, government Influence is scattered between different ministries for road, water, rail and air transports as well as urban and interurban transport.

As for the energy consumption in urban transport and buildings, municipalities have a key role, not only because they are responsible for enforcing State policies but also in shaping their transport, housing and land use systems in general.

1.4.3 Auxiliary and service functions

Research, development and advisory in the energy sector are carried out by a wide range of organizations, many of which are part of the independent State level Academies of Science, Social Sciences and Engineering and Universities. The latter play important roles in providing the highly qualified human resources.

In the planning, design and engineering field related to energy many institutes and companies are active, which in many cases are depending on energy sector SOEs or even on executive organizations of the State. The Energy Research Institute (ERI) of the NDRC is the energy policy brain trust of NDRC. The Development Research Centre (DRC) plays the same role for the State Council in a more general way however increasingly dealing with energy issues. The classical design institutes, in the planning economy responsible for designing all systems, equipments and products of a sector, do still exist. They have however been reorganized and reoriented to become more commercial and have to operate increasingly in a competitive environment.

1.4.4 Coordinated allocation mechanisms

Allocation clearing mechanisms between industries existed already before the recent reforms.

Coal conferences bringing together coal producers and large clients from the electricity and other coal using industries used to take place under the guidance of the NDRC and her predecessors. These coordination conferences however have ceased to work out in sustainable coal delivery contracts when coal became too scarce and had too many increasingly independent players that did not respect the ceilings set by NDRC. These coordination conferences have given way to coal trading in a kind of commodity exchange.

Within the electricity sector there used to be an annual dispatch conferences which prepared the load dispatch plan on the interconnection levels. These dispatch conferences continued to work even after the break-up of the State Power which created a greater diversion and increased the number of players..

1.5 Important features of the institutional environment

1.5.1 Energy sector in the socialist market economy with Chinese character

The institutional change in the energy sectors reflects the institutional change of the Chinese economic system. Due to the key role in economic development as a basic industry, the reform and opening up of the energy industries has not been as far reaching as in some manufacturing and trade sectors or the building industry. Compared to other infrastructure sectors like railways and postal services and even communications, however, the energy industries are relatively advanced.

The different energy industries show varying degrees of opening up. Competition has been introduced except the grid bound parts, even in electricity generation, embracing a concept which only recently has been introduced in industrialized market economies.

Private capital is being attracted. However, foreign capital is not allowed to take controlling stakes in enterprises of the energy industries or to enter the market as competitor. This provision indicates the strategic role which is given to them in the socialist market economy with Chinese character, in which the market mechanism is welcome but subordinated to a control of economic development by the State.

1.5.1 Vertical lines and horizontal pieces of sector administration

An important feature of the Chinese administrative system is the vertical chain of instructions. Ministries of the central level are reflected almost identically in the departments on the provincial level and then further on municipal, county and township levels. At least for leading functions, there is even an exchange of personnel. A government official must pass through lower level government organizations in his career even when he starts to work in higher level governmental organizations. The reward system is such, that officials are given goals that they must reach in their respective levels' functions. Their career is depending on the points they accumulate while leading lower level entities.

Thus, officers in the lower level organizations do listen to instructions from the upper level. At the same time, they must execute the policy of the lower level government execute report to the leaders of the government on their level. This implies that for an official on the lower level, there is a double bind. He or she must report to the vertical hierarchy of the line ministry, while being part of the local government on the horizontal level, led by the governor or mayor..

Such a double bind also exists for executive employees of large SOEs such as the State Grid Corporation. The executives of a municipal utility must in fact report to the provincial utility as well as to the municipal government.

The system of vertical chains of instruction is a powerful administrative tool, which can be used effectively to implement comprehensive policy programs. The integration of

agencies and even enterprises in this system through ownership and personnel exchange extends its effectiveness well beyond public administration.

The effectiveness of the vertical system is, however, restrained by the horizontal chain. This creates a conflict of interest for the official as the priorities of the local economy may differ from the State policy instruction, in particular if the State imposes energy efficiency and environmental protection provisions. This conflict and in particular the way the officials deal with the conflicts that regularly occur, may even lead to non-enforcement of State policies. Here operates what scholars call “fragmented authoritarianism” (Lieberthal 1992) The chains of command and reward become weaker with the distance from the centre, and other influences combined with increasing degrees of freedom make it possible for instructions emanating from the centre not to be observed. This tendency has increased during reform *the communist state has been transformed from the central leadership’s tool of social engineering, guided by ideology and organized through close knit authority, to a market like place where the center loses coherent control and public authority and assets are extensively traded by state agents at various levels for self-defined purposes.*(Lin 2001, p. 6)

1.5.2 The ubiquitous institutional environment: The Communist Party of China (CPC)

Apart from the State, the Communist Party as the constitutional rector of the political system takes an interest in energy sector issues when they become important for overall development. At present, energy is considered one of the key factors for future development and, thus, for the well being of China’s populations. As the communist party considers the well being of the Chinese crucial for its legitimacy, energy and natural resources issues are being discussed in party policy circles.

The party is a parallel institutional arrangement spanning all organizations of the society, including the enterprise world. It is certainly instrumental in the transformation and execution of sector reforms, and another important factor in the enforcement of energy policies.

1.5.3 Social networks

In China, social relationships are considered of outmost important in China, for seeking support in personal as well as in professional matters. Within the different energy industries, social networks are particularly strong. Personal relationships were forged in the integrated systems of the industries, including schools and universities, which lasted until the end of the 1990s. The reforms have reduced the closeness somewhat. Disintegration of State and enterprise functions and now, also disintegration of enterprises into competing entities has changed the type of relationships, similar to the separation within families, when brothers become cousins.

Across energy sectors, social relations are much less frequent and rather improbable. Apart from specific cases like the oil and gas with chemical industry; the personal

relations between energy supply personnel with personnel from energy consuming sectors are evenly improbable.

The relations within the industry and between industries are a factor in conflict solving in particular when the rule of law is hardly implemented.

Nonetheless of all the changes, the energy sub sectors are rather closely knit institutional arrangement and environment with a strong leadership in the State and other supervisory and guiding forces. However, the interrelationships between the different sub sectors are rather weak. Institutionally, they were merged into two parallel Commissions as late as 1998 and, finally, into one department of the NDRC as late as 2003. Equally, the consumption sectors are only partly under direct influence of the administration. On the fringes, the influence becomes less and less.

2 Procedures of political decision making and enforcement

Institutional changes of the energy sector have an impact on the ways energy policies are prepared, implemented and enforced. This chapter traces such changes in the energy policy formulation, planning coordination and decision making process based on observations

has the purpose of indicating the variety of ways how policy decisions come about and how they are implemented and enforced.

The institutional arrangement and environment of the energy sector whose major features were briefly presented is relevant for the energy policy process, even if policy decision making is the exclusive task of the State organs. There are many organizations involved in the preparation of policies as well as in the implementation, enforcement and application of the policies.

2.1 Decision making

The decision making itself is a culminating point of a policy measure or a policy plan.

From the structural overview, it seems evident, that the energy policy decision making takes place principally in the State Council with some frame setting by the NPC. It is safe to say, however, that fundamental or far reaching decisions of the energy sector need the consent from the President as well as from the Polit Bureau and the Standing Committee of the CPC .

It is known that some energy policy decisions have been highly controversial even between the leaders of the State organs and members of the SC. It is not transparent how the decisions come about.

Formally, there are clear hierarchies of decisions and respective *loci* of decision: Laws, regulations, notes and circulars. This does not necessarily imply that the decisions with highest impact are those codified by a law. As Chinese laws tend to be rather generic, the regulations and lower level legal instruments may have a more significant effect. That underlines the high decision powers of the executive arm of the State and in particular the NDRC:

There are even cases, in which other kinds of decisions do not have norm setting character like a set of decisions on state property rights (reorganizing assets in different entities), like the sale of state assets may have the strongest impact as the example of the electricity sector reform of 2003 demonstrates.

Political processes, however, do not start with the decision making. Policy decisions don not “come out of the blue” but are a culminating point of a policy formulation process.

2.2 Processes leading to decision making: energy policy formulation and coordination

2.2.1 Energy policy initiatives

One might expect in a straightforward interpretation of the centralized character of the Chinese political system, that political decisions are prepared by a group of technocrats on the respective level and, after consultation with the organizations or citizens concerned, are submitted for decision. The procedures for the preparation of the Five Year Plans (5YP) follow this pattern. However, the 5YP has no monopoly on formulating policies. Initiatives come from other quarters. They may be included in 5YP. However even if the 5YP try to capture everything relevant during the period of its preparation, it has become rather a coordinating mechanism

Initiatives originate in many cases outside the government. Successful initiatives may come from a wide variety of sources and may take the way through the executive arm or through the legislative arm of the government. They become relevant, when they capture the attention of high level policy agents.

For instance, some Chinese organizations (research or design institutes, even NGO, or eminent persons) can present an idea for an energy policy measure or package and ask for encouragement from the highest level of the government. If this support is given, they then ask for material support from sponsors. The encouragement is given in the form of a handwritten endorsement and signature by a highest level government member directly on the cover of the proposal, or by a formal red headed letter with a stamp. Then it is considered a mandate for the respective organization or person to pursue the issue, even if no financial support is promised. Funding must come from own resources, which are sometimes accumulated through other government contracts, or must be acquired from third parties (private or state owned companies, or international cooperation). One could call this pattern a *mandate acquisition*.

Such external initiative and informal patterns of policy formulation, where agents from outside or below the government take the Initiative to which the government agrees, without ever financing the process, take place relatively often. They may be related to specific and diverse matters like the demand side management in electricity consumption, competition in the oil sector etc..

Another increasingly important pattern of energy policy formulation is one, in which parliament takes the lead. The NPC committees for environment and others are more often taking the initiative on environmental protection and renewable energy sources, and are insisting on legislative changes that are more or less supported by interested departments within the executive branch. Following the successful passing of a law promoting renewable energy sources in early 2005, amendments to the energy conservation law as well as to the electricity law were prepared

International influence in policy formulation is possible. However it has to obey to the principle that the Chinese partners and authority have the leading role. It is not possible to exert pressures and conditions, even when the pressure is backed up with the promise of significant grants. Trying to pressure may lead to backfiring as multilateral organizations have already made this experience.

Patience and long term commitments are preconditions. Then it will be possible to use opportunities to give advice and assistance for information and exchange.

Final choices are entirely internal to China. Sometimes the option favoured by internationals wins, sometimes it doesn't. However, even when it wins it is tainted with Chinese character.

2.2.2 Planning and coordination mechanisms

Five year plans

The aforementioned 5YP is still very relevant for the energy issue. Even if they have become less binding, the 5YP are still an important formal mechanism to define mid term energy policies, in particular for public investments.

It has changed in character from a detailed activity planning instrument of the planning to a more general objective coordination tool in the socialist market economy. It has been transformed from sector plan to a sector policy planning and coordination instrument

With respect to energy, the 5YP sets the priorities for the respective periods and put forward targets for key indicators. The plans are highly inclusive, as many experts participate in formulating specific policies, and they are extremely comprehensive as all levels of governments are elaborating respective plans which fit into the general priorities.

NDRC is in charge of preparing the 5YP before the government adopts it and presents it to the NPC. the central role in preparing the 5YP again gives a key role to the NDRC in formulating and defining energy policies, on top of its dominating position in the institutional set-up of the sector.

Long term planning

With the mid term planning in place, the long term strategic planning was missing in the Chinese energy policy for a long time. There were some projection exercises by the Energy Research Institute (ERI) and other more academic organizations, but there was not a generally accepted governmental long term energy planning. The missing long term framework was considered one of the reasons why coherence and long term orientation was lacking in China's energy policy (Andrews Speed 2004).

This changed in 2003- How this came about, is remarkable in that it had a rather informal pattern, similar to the pattern mentioned in other cases of policy formulation.

The conditions for defining such policies improved dramatically when the Energy Bureau inside the NDRC was created in the new government in March 2003, and when the rivalry between the State Economic and Trade Commission (SETC) and the State Development and Planning Commission (SDPC) in energy policy was overcome by integrating the energy staff of both organizations into the NDRC. Immediately after, some research institutions set up a work plan to define a long term energy strategy for China to be presented as soon as it would be possible. Interestingly enough, the Development Research Centre, the think-tank of the State Council joined forces with ERI of NDRC. This guaranteed more attention by the State Council at the same time as providing a long term energy strategy to NDRC. In addition, experts and even officials from other ministries participated already in the analysis. International cooperation had encouraged such work and some international funding and cooperation in the analytical and policy concept work was acquired. The analysis and strategy proposals were presented by the leading think-tanks and the involved researchers to the whole energy sector establishment and to the international expert and donor community in autumn of 2003 (Development Research Centre of the State Council 2003):.

The thorough analysis of future energy demand and supply options leads to an attempt of formulating a comprehensive energy policy for China. The work became even more important for Chinese energy policy when, in 2004, data corrections and new data of strong demand increases indicated that China was on an unsustainable energy growth path. The government was alarmed and increased the attention to energy policy as part of an overall resources policy.

It became obvious to the government, that the objective of modest wealth for the Chinese population by 2020 would require a much more energy-efficient economy and society in addition to the using of all available supply options. As the legitimating of the political system is increasingly based on its ability to fulfill China's peoples' dream of prosperity, the issue gained highest political priority and the *resources saving society* was proclaimed by the leaders of government.

So, the analytical exercise done in 2003 was fortunate, as it established a framework of energy policy analysis that was not previously available. It was then possible to reconsider some of the scenarios in order to explore and define a policy, in this case the ever more pertinent efficiency scenario.

This is an example, how institutional change (removing the competence conflicts) opened the way for long term strategic energy planning, which then lead also to a new concept of energy policy. It is also an example of how initiatives from outside were successful in influencing China's energy policy.

2.2.3 Transitory leading groups for complex reforms

A more formal pattern of policy formulation, which is however initiated from inside the government is that of a *leading group*. Inter- ministerial or inter-agency leading groups are set up frequently in the government to deal with new issues which need a joint effort, like the western development or the agenda 21 and many others.

In recent energy policy, a leading group existed for the electricity sector reform. This leading group was formed during the former government and presented its recommendation in 2002 (Coordination and Leading Committee of the Power System Reform 2002). These recommendations became the blueprint of the reform, which was implemented starting December 2002.

The leading group on the power sector reform was not able to create a widely accepted solution. During the work of this leading group, a fierce fight was raging between two different schools of thought represented each by highest leaders in the government. On one side the integrated monopoly concept was favoured by the engineering school which was very well rooted in the power industry and in the government and on the other side the disintegrated competitive concept for the power sector organization and functioning, was favoured by the economists and supported by multilateral cooperation.. During the California energy crisis it looked as if the competitive approach would loose. When, however, it became obvious that the existing integrated monopoly in China was not optimizing its resources because of provincial egoisms, the highest political level sided with the reformers and the competition concept succeeded. The stand off had taken personal toll on the loosing side, when second level leaders were sacked for alleged corruption.

The leading group, in this case, was not able to play the role of coordinator and mediator and could not produce a compromise.

2.2.4 Overcoming conflicts from vested interests and different development objectives

Every significant policy is the result of a negotiating process, rarely of straightforward technocratic planning process. There are conflicting views, different concepts and competing policy goals, which have to be moderated. When the consequences of changes and reform options differ greatly for companies' positions, individuals' power and income, compromise is difficult, negotiations draw out in time and as seen in the case of the power sector reform, a decision on highest level becomes necessary to terminate.

When the political options open up, the stakeholders in China defend their preferences just as fiercely as in a western democracy. Such struggle and conflicting positions may not be visible or transparent, and are more or less known of the sector community. Sometimes the struggle involves the highest political level, as in the case of the electricity sector reform, where two of the three leaders of the State, as the NPC chairman and the

Premier of the State Council were exponents of two entirely different concepts. The outcome was not predictable.

Vested interests always try to influence policies. Existing Enterprises do not want to be dissolved. State Power leaders, therefore, did their maximum to avoid the disintegration of the generating companies, what finally happened. The grid company, which beside holding transport and distribution, has also the function of electricity wholesale and retail, will argue and resist as long as possible against further vertical disintegration and unbundling of functions. It continues to be unwilling to accept the feed-in or wheeling of electricity from self-producers or decentralized small generators.

Similarly heating companies do not want to abandon billing by square meters in favour of consumption based billing, because this will reduce their revenues more than their costs. For the same reason they oppose higher energy efficiency standards.

Energy policies were always prone to the influence of powerful monopolistic SOE's.. Whether the increasingly diverse enterprises in the energy sector will have more or less influence on the policies, remains to be seen.

It is difficult to separate between objectives and vested interests. However, some characteristic objectives distinguish Chinese policies. National industry development, security of supply and social aspects are given high priority. As an important player, the NDRC is known for a development oriented approach, which evolved from the planning orientation. NDRC tends to favour policies which condition the participation of foreign companies in the Chinese energy market to cooperation and joint ventures with Chinese entities.

2.3 Implementing and enforcement procedures

A typical feature of the reform process in China is the trial. Innovations are tried out for a defined period of time in a defined area. Good examples of such pilots of policies can be found in the electricity reform, when the disintegration of generation and networks was experimented in eastern China or when the direct supply of large consumers by electricity producers is experimented in North East China. Similar experiments were made with emission trading in East China and in numerous areas.

The policy itself is introduced on the basis of such experiment, often in modified form taking into account the lessons learnt in the pilot area.

It seems, however, that the legislation does not always precede new regulations or reforms. Sometimes, policy trials are carried in pilot regions for a limited period of time. If such tests lead to good results, the policies might be expanded and could become valid in the whole of China. Later, if necessary, legal definitions are created or adjusted.

As stated before, the laws dictated by the NPC are formulated in a rather general way. This leaves room for the legislative and executive actions of the government.

Once a policy decision is taken, implementation is generally effective and without major delay. In general China has an excellent record of implementation.

The measures for implementation and the required resources differ much and depend on the instruments of policy which are chosen.

Public investment programmes require an allocation of public funds. Typically, such programmes are not launched before the financing has been assured. Compared to other countries, the time frames for such programmes are relatively short even for large size programmes. This puts enormous pressure on implementing agencies to execute them in the respective areas of the large country. There is little time for thorough planning and setting up of complementary measures like awareness and capacity building or even creating the appropriate institutional arrangement to ensure sustainability.

If the policy measure implies the changing of rules and standards, implementation on the national level is equally swift. Normally, such changes come after they have been tested somewhere, so the feasibility is assured.

The vertical line of instruction from the State to the local governments is a very effective means of informing and instructing about the changes. If the implementation requires a further specification, for example by local governments, the process becomes slower.

If new rules and standards must be enforced on the local level, the rate of enforcement may become very divers. Some municipalities have the capacity and the interest do go swiftly, whereas others may lag very far behind. This may be caused by the phenomenon of the *Local Development State* (Lin 2001, p 12), which has different priorities from the Central State..

The enforcement record of Chinas command and control is mixed. Enforcement cannot be taken for granted. Again, an outsider would expect enforcement to be the logic within a centralized system. The already mentioned paradigm of the “fragmented authoritarianism” may be valid explanation.

Fiscal measures are implemented relatively easy, if they imply tax reductions. Direct subsidies from the State budgets are obviously not part of the preferred policy instruments. Implicit subsidies are rather common, as most energy prices are fixed by the price authorities.

The following case presentations of policy measures provide also examples of implementation and enforcement.

3. Cases studies of policies:

This chapter looks at specific policies, observation of cases from the last 5 years. The policies are briefly described. In some cases, implementation and enforcement has already advanced and can be reported. In other cases, the description refers more to the formulating process and the reasoning for the options which are chosen, i.e. the explicit and implicit objectives. Institutional aspects are included in order to trace the relationship of the choices but also the success and failure in implementation back to the institutional arrangement and environment.

3.1 Electricity sector reform: Profound effective reform without change in the legal framework

In 2003, the power sector reform was carried out leading to profound consequences on the functioning of the whole sector, with no corresponding reform of the existing electric power law. The reform was simply triggered by a transfer of state assets from one SOE to several others. Not even a new regulation was introduced, defining the details and procedures of the functioning of the respective sector after the reform.

The reform was based on the adoption by the State Council of recommendations made by the leading group in charge of the electricity sector reform. His adoption of the recommendation had a legal status. Notions and circulars of seemingly little legal importance were sent out from State Council or Ministries.

The recommendation and the decision by the State Council did not define the new operational rules and procedures of the sector. It decided instead on a new division of property rights, by reallocating state assets, personnel and other resources from one SOE to 11 new ones: 5 new generators, 2 grid companies and 4 minor service entities. This reallocation of property rights had vast consequences as it inherently changed the allocation principles in the electricity industry. The operations were no longer an internal process inside an integrated monopolistic firm, with some dealings as single buyer with independent producers. Power generation became a separate activity of different firms competing with each other. Even if these firms remained SOEs, competition became the new mode in generation. (More details Suding 2003)

This transformation was rather simple compared to the transactions which were necessary in other countries for a similar reform. The transaction was consequently done within 3 months.

What is puzzling to an observer is that there was no change or amendment to the existing electricity law, while there was a fundamental change in the principles of functioning. These extensive changes have not yet been codified. The project of a new electricity law is in the making. A quote from an insider points out the way of thinking: *First we learn the language, then we write the grammar.*

What is outright amazing, is that this profound change seems to function. Worries formulated during the reform process (Feng 2003) were not justified. . Functioning risks did not materialise. The electricity production of the new generators was dispatched in the same manner as it was dispatched before including the annual dispatch conferences.

The electricity supply crisis, which followed in 2003 and deepened in 2004 was not the result of this reform but an effect of a moratorium on power station constructing dictated by the government in 1998 and the strong increase of electricity demand during the industrial boom.

How is it then that the electricity sector continues to function, without functioning regulations ? The answer may be that the transmission and distribution networks were kept in the hand of the vertical and horizontal structure. Even if the assets were transferred from one book to another and new organizations were created, these organizations remained part of a system which was closely controlled by the government and the party. The system also remained technically and personally intact. The technical personnel continued to function basically in the same way as before.

The electricity sector is similar to a “large family”, or a system of closely related entities, all operated by State, and with a backbone of a party structure . The members have good personal relations. This, however, could not avoid the shortfall and the electricity crisis which would have happened without the reform in any case.

With respect to the entirely new institution, the State Electric Power Regulatory Commission(SERC) it can be observed that there is a certain rejection by the “family”. The regulators are regarded as foreign to the habitual structure and procedures. It remains to be seen, how major conflicts involving the SERC will be solved, when they arrive.

By this example, we seek to show how a reform can be carried out without the changing or adopting of a new law. Indeed, such a mode of operation might work for some time in a relatively hazy legal framework given that an informal environment is set to assure the functioning.

3.2 Building energy efficiency: A conventional legal framework change ineffective in a changed institutional environment

In 1996, a new building energy efficiency directive was dictated and respective standards for energy efficiency in building were enacted for north China. .From the year 2000 all new buildings would have to have a 50 % improvement in energy efficiency as compared to the former situation (building standards as of the early eighties).

The classical policy approach was taken here, where central governments set rather general standards and the provincial and local governments were in charge of defining and developing more specific standard and procedures in abiding by the directive.

The enforcement of these new standards were almost a total failure. Only slowly effective, in 2001 under 10 % and In 2003 only 30% enforcement rated.

This failure was very significant because the great number of buildings being built during the first years of the new century will not be destroyed before a long time, and use excessive energy quantities for the next 20 years if not retrofitted (Suding 2004):

How could this happen? The failure is in not recognizing the change in the relevant industry. The real estate sector in China had become crowded with about 30 000 companies. They were very difficult to control by the local construction authorities, even if the latter wanted to. The real estate investors had no incentives to comply with the efficiency standards and had no sanctions to face when they did not

The market did not offer incentives as long as the tenants and buyers of apartments were not prepared to pay a higher price for a better insulated apartment. As long as the heating bill was calculated in square meters they had no reason to do so even if the building efficiency differences were discernable.

The professionals (architects and engineers) had little knowledge in building and energy efficient heating and no incentive either to use their spare time to develop know-how when they were occupied with the designing of new buildings.

The local authorities saw no advantage in strictly enforcing the higher standards. They considered the quantity of square meter housing being constructed as a much more important indicator for their success. Moreover, the local government state's concept is the following: Local officials tend to collaborate closely with entrepreneurs when such a collaboration promotes their goals. Indeed, local development states alter their intentions ranging from tolerating economic actors, self arranged activities, to actively providing regulatory and resource support for such activities. Also, little importance is given to non visible successes such as environment protection or energy efficiency.

The central government finding itself alone in the fight for pursuing energy efficiency had to concede failure.

By 2005, the government reacted vigorously and introduced new indicators for the evaluation of local officials. In addition to economic, material and infrastructure growth, water and energy saving will in the future be important parameters of success. Sanctions will be handed down in the form of reduced state financing to the respective local governments.

Interestingly enough, the governments reacted by changing its system of reward and sanctions, in order to reach higher enforcement ratios. Such a policy is within the usual scope of policy making.

As opposed to the electricity sector, the decisions to comply or not were made outside of the system of horizontal and vertical relationships. So they cannot be controlled: they would need incentives.

The incentive structure for the private sector investors and tenants is not changing that quickly. The heating reform including the introduction of consumption based billing is only slowly being introduced..

The inappropriate design of the policy is still not being altered. The new general energy efficiency program of the government bears the same scripture. Heavy handed quantity objectives and specific sub-sectoral programs prevail over market oriented incentives.

3.3 Township electrification program: The Classical Program approach and its institutional weaknesses put sustainability at risk:

In 1996 the Chinese Government launched the so-called “Brightness Program” scheduled to run until 2010. The objective was to give 23 million people living in remote areas of Western China access to electrical energy by means of decentralized energy systems based on renewable energy. Within this framework, NDRC with funds from the Central State carried out the Township Electrification Program to electrify about 1000 townships in 7 provinces by means of PV and PV/Wind-Hybrid Systems between 2002 and 2004. The overall budget was equivalent to 240 Mio US\$ (Haugwitz & Müller 2004)

This was worldwide the largest program of its kind. It was carried out according to a plan in a comparatively short time period. It was thus extremely effective and was only possible thanks to the vertical chains of command combined with the agglomeration of implementing organizations around it.

During the implementation of the program, significant risks became obvious. The program had not foreseen an institutional setup for the future operations of the systems in the townships. Secure operations were guaranteed only for the first 3 years by the system integrators in charge of the installations. The issues of ownership, operations, maintenance, pricing and refinancing after this inception period were not clarified and no institutions and capacity building program had been thought of for that. The sustainability of the program was at risk. This was recognized and dealt with, with the help of international cooperation.

The Township Electrification Program represents a classical campaign type policy with its strengths and weaknesses. Even though the planning system and procedures are things of the past, the internal instruction and reward structure still allows for the implementation of top down programs not only within but also outside of the energy sector. Such campaign type large programs can be implemented within a comparably short period. This is the strength.

The weak points are in the non-consideration of institutional issues. Parachuting infrastructure in an institutional vacuum is bound to failure of sustainability. The Township Electrification Programme did already better than earlier programmes in creating a three year maintenance obligation for the implementing entities. This gave time to deal with the institution and capacity building which improve the prospects of sustainability.

3.4 The energy efficiency program A Classical Top Down Approach decorated as Market Economy Approach may fail

China has recently made energy **conservation** a top priority. In November 2004, an energy conservation plan was announced (NDRC 2005). The goal of this plan is to save about 1.4 billion tce and to limit PEC by 2020 to about 3 billion tce given an unchanged prospect for economic growth. This plan is a wide-ranging program that sets conservation targets for end use sectors like industry, transport and buildings as well as for energy transformation, transmission and distribution. Specific consumption targets are given for important industrial products and transport services, and efficiency bands are planned for energy facilities and equipment.

These targets are to be reached through a mix of energy policy measures. The policy is presented as a market economy approach and incentives are mentioned as principal instruments. Nevertheless, the policy bears the stamp of the classical Chinese political method: on one hand, a campaign with the assignment of goals, guidelines, rules and standards; on the other, a technology-oriented process with a focus on key projects. There is a lot of rhetoric but little detail is given on incentives.

This conservation program is the basis of the objectives which were announced by Premier Wen Jianbao in March 2006. Whether this program will be a success, remains to be seen. It would stand a better chance of being accomplished if incentives are in place for the relevant stakeholders.

3.5 The Control policy versus the Incentive approach: The case of the Renewable Energy Promotion Policy.

With respect to renewable energy policies, the initiative for a comprehensive policy clearly came from the NPC's commission of environment. , The NPC taking the initiative created expectations that the period of inconclusive promotion policies led by NDRC and, before by SDPC and SETC). The executive branch of the government was lukewarm to the initiative of the legislative to create a renewable energy promotion law. However, the NDRC had to execute the instruction from NPC to elaborate a draft law, which was done incorporating a large number of experts. Parallel to that, the NPC had commissioned another group of experts. The two drafts then were integrated into one and the law was enacted in time in February 2005.

The drafts were inspired by the policy experiences in industrialized countries and opened up practically all the options for renewable energy promotion policies to be applied in China.

The Renewable energy law NPC passed in early 2005 (NPC 2005) most and foremost dictating an obligation for the networks to receive feed in electricity from renewables: Apart from tax reductions, public benefit funds and favourable technical standards, all the great promotion policies were foreseen: competitive bidding for resource concessions, renewable energy quota or renewables portfolio standards, as well as the feed in tariff. In order to define the implementation, a set of 12 regulations was mandated to be developed by Ministries under the State Council.

The whole process was rather well communicated and even foreign consultants were invited to give opinions and advice on the regulations as had been done during the drafting of the Law. The whole rather transparent exercise seemed entirely different from the usual negotiating process within closed circles.

The feed in tariffs clearly seemed to be the favourite measure for the promotion of grid connected renewables. The potential feed in tariffs was discussed in international hearings.

However, at the same time, the NDRC organised capacity allocation meetings with the provinces, in which the wind power capacities each province should build until 2020 were fixed, and the respective general network designs were commissioned. This allocation planning was an indication that NDRC did not want to rely entirely on feed in tariffs incentives. In effect, with feed in tariffs even the future total capacity would remain somewhat uncertain, all the more so the contribution of the different provinces.

When the regulations were finally announced to the public, the feed in tariffs were not chosen as the promotion instrument for wind energy. This came through as a huge surprise to most of the observers after years of discussions. (NDRC 2006)

The choice of public bidding for wind concessions, however, it is much more in line with Chinese energy policy characteristics, as grandfathered by the NDRC. With a feed in law, the NDRC would have given away control. Instead, the NDRC sticks with public competitive bidding of resources concessions. This instrument allows to determine where, how much capacity is built and under which conditions, including conditions of local content.

Again, the control approach has won against the incentive approach .Whether it will yield the expected results remains to be seen. In order to achieve the planned capacities, the electricity producers are given orders to attain a certain renewables quota in their portfolio, a tacit portfolio standard. This will take care of the quantitative objective, and also of ownership, which will almost exclusively be with the electricity generators. These again, being good corporate citizens, will make sure that the local content objectives and the establishment of a China's wind industries will be achieved.

Conclusions

Three sets of conclusion:

- One general more epistemologically
- Second: Conclusions for Chinas energy policy
- Third: reasons for specific traits of Chinas energy policy.

Epistemological conclusion

The underlying hypothesis of this paper is, that institutions matter.

The presentation of the case of Chinas energy policy shows that the institutional arrangement and environment not only give structure to procedures of policy making but also pre-empts choices of policies and policy instruments. that the preference for the type of policy and related institutional arrangement is not accidental

Vice versa: certain policies require specific institutional arrangements to exist. A misinterpretation of the effective institutional set up by policy makers may cause ineffectiveness. Another policy approach is needed, where the institutional arrangements have effectively changed.

Furthermore: It is difficult to enforce standards in a market economy, where stakeholders make decisions on the basis of market data and preferences, if these standards are not in line with market signals, or for that matter, are backed up by incentives.

Chinese policy conclusions

China's government has managed to identify the problems, and to set up a long term planning framework. The present administration seems to face the current and foreseeable problems with a more consistent approach. Competence conflicts have been resolved through institutional adjustments. Energy has received the necessary attention by the highest levels of the government. Vigorous programs have been designed and enormous pressure has been set onto the political and related system to achieve the ambitious objectives.

Effective Implementation and enforcement structures are in place. The double structure of vertical competence of the line ministries and the horizontal integration into local governances is being used for a top down instruction or command and control approach.

The implementation and enforcement of these policies as presented in case studies have mixed results: Where policies are executed, implemented and enforced by organizations belonging to the state structure, this allocation process is still effective. This is the case of the energy supply sectors, which are still pretty much under control.

Outside however, in energy consuming sectors for example, the situation is already quite different. Where more and more non state actors are involved these kind of policies tend to fail. It seems rather that the situation in some sub-sectors has changed more rapidly than the political toolkit did. Where the character of the policy has not changed as rapidly as the structure and processes in some sectors, it becomes inadequate.

It seems that the Chinese government fails to recognise some of the lessons. Some setbacks, in particular with respect to energy efficiency in the buildings sector, have not irritated the choice of approach. Indeed, instead of introducing more incentives and market oriented policies, the government has chosen to do “more of the same” and to increase the pressure on the political system by introducing rewards and sanctions on local officials for compliance. This is an extremely slow process.

The new designs of policies continue to give strong preference for command and control type policies combined with some other instruments focussed with sectoral focus. In the respective programs there is a considerable amount of rhetoric on market oriented instruments but little concrete incentives.

It seems even that the Chinese energy policy, which is transforming more and more parts of the energy sector into competitive markets, is at the same time trying to control allocation processes in order to achieve its objectives. This causes systemic conflict, except in case of an almost perfect coherence. Controlled allocation and market allocation mechanism can only coincide when the market signals` incentives are coherent with the desired results of the control mechanism. In other words: Holding on to control policies will lead to further inefficiencies if the stakeholders do not receive the appropriate incentives.

Additional examples of policies, which try to control allocation processes within a market system in order to achieve certain objectives can be find in the climate change policy. The rules for Clean Development Projects are specified in a way that restricts foreign actors, modifies incentives for certain type of projects etc.

The question arises: why is the Chinese energy policy doing this?

Some of the possible causes may be embedded in the collective or individual experience of policy makers: The key decision makers have a socialisation as planners in the planning economy.

The existing institutional dispositions also play a role: A very effective machinery for the command and control policy is readily available. There is the tendency to use it even when it is not so appropriate.

But this does not explain why this policy is not effectively backed up with incentives.

One potential explanation is, that incentives work invisibly. The actors who benefit remain anonymous and more actors may be attracted, like in case of the feed in tariff.

Such kind of development which brings about multitude of players including foreigners may be unwanted, in particular in sectors, for which the government has a more specific vision.

This relates to the industrial policy which China in general and in particular the NDRC is pursuing. The objectives of this policy do include the strengthening of the national Chinese industry. This objective may have even priority over economic efficiency and may even be a hindrance to technology transfer. The NDRC seems to not want so many diverse players and equipment and technology markets which may run away from its control.

References:

Andrews – Speed, Phillip (2004), *Energy Policy and Regulation in the Peoples Republic of China*, Kluwer The Hague/London/New York

Coordination and Leading Committee of the Power System Reform (2002), *The Scheme for the Electric System Reform*, inofficial translation of an original Chinese document, Beijing, January

Development Research Centre of the State Council (2003): “National Energy Strategy and Policies” in: China Development Forum, *Background Papers*, Beijing, DRC

Feng, Fei (2003): “Two Issues Requiring Further Resolution in the Establishment of the Electric Power Supply Supervision System”, in: *China Development Review* Vol. 5, No 1, Development Research Center of the State Council, Beijing January pp 43-51.

Haugwitz, Frank & Hansjörg Müller, “Renewable Energies in Chinas Rural Areas”, in: *Words into Action*, London Faircount 2004, pp 108-111

Lieberthal, Kenneth G (1992), “Introduction. The "Fragmented Authoritarianism" Model and Its Limitations ”, in: Kenneth G Lieberthal & David M. Lampton (eds.), *Bureaucracy, Politics, and Decision Making in Post-Mao China*. Berkeley: University of California Press.

Lin, Yi-min (2001), *Between Politics and Markets Firms, Competition and Institutional Change in Post-Mao China*, Cambridge. University Press

National Development and Reform Commission (2005) China Medium and Long term special program for Chinas energy efficiency and conservation November 25, 2004 , English translation published by EU project in January 2005

National Development and Reform Commission (2006), “Circular of National Development and Reform Commission on printing and distributing Temporary Measures on Price and Expenses Apportionment Management of Renewable Energy Power“ In: *Circulation of National Development and Reform Commission*, Top urgent NDRC Price [2006] No.7 Beijing (unauthorized translation)

National Peoples Congress (2005): *The Renewable Energy Law of The People's Republic of China* (Full Text), Beijing (Draft Translation of Authorized Release)

North, Douglass C (1990), *Institutions, Institutional Change and Economic Performance*, Cambridge University Press

Suding, Paul H. (2003): “Zur aktuellen Reform des Chinesischen Elektrizitätsmarktes”, in: *Zeitschrift für Energiewirtschaft*, 27. Jg., 2/2003, S. 141 -155

Suding, Paul H.(2004): “How to Improve the efficiency on Energy and Resources for City Buildings in China” (text in Chinese) , in: *Energy Efficiency in Buildings* Vol 43, Beijing CBEEA) Chinese version of *Use the Carrot as well as the Stick*, Publication No 2 in Series: Results-Experiences-Best Practises, Beijing GTZ

Suding, Paul (2005), “Using all Energy Sources and Efficiency to Keep People’s Dream of Prosperity Alive”, in: World Energy Council, *China’s Energy Supply*, Berlin, DNK of WEC pp 9-41