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MANAGING "REQUEST-OFFER" NEGOTIATIONS UNDER THE GATS: THE CASE OF ENERGY SERVICES

Contribution by the UNCTAD secretariat*

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THE ENERGY INDUSTRY AND THE ENERGY SERVICES SEGMENT

1. Energy determines the quality of our daily lives and is one of the most important drivers of economic development. The provision of adequate, affordable energy is essential for eradicating poverty, improving human welfare, providing sustainable economic growth and raising living standards worldwide. Efficient and reliable access to energy is a precondition for industrial development and for attracting foreign investment. Access to energy, however, varies dramatically among countries and regions. Around 1 billion people in the industrialized countries consume nearly 60 per cent of the total energy supply, whereas the 5 billion people living in developing countries consume the remaining 40 per cent. At least 2 billion people (one-third of humanity), mainly in the rural areas of poor countries, lack access to electricity, but the real number may be considerably higher. In some African countries the electrification rate is as low as 2 to 3 per cent. Lack of access to modern and sustainable energy is a major cause of environmental degradation in vast areas of the developing world, and a major impediment to sustainable development.

2. Energy is estimated to be the biggest business in the world economy, with a turnover of at least US$1.7–2 trillion a year.[1] The World Energy Council estimates that global investment in energy between 1990 and 2020 will total some US$30 trillion at 1992 prices.[2]

3. While until quite recently governments worldwide have considered the energy sector too crucial to be left to market forces, now countries in all regions are reforming it. Structural reform is meant to cut costs and improve the economic performance and efficiency of the energy sector by imposing free-market disciplines and commercial criteria. It can refer to a range of policy measures and take several different forms, including privatization (the selling of part or all of a government-owned energy system to private owners, including foreign investors), increasing competition, de-monopolization (particularly to unbundle the monopoly into distinct entities) and deregulation (involving both removal of regulations and reassessment of regulatory methods in areas where regulation remains appropriate). Regulatory reform is itself part of a wider phenomenon – the drawing back by Governments from direct intervention in markets. Structural reform is changing the premises of the energy sector and opening the way to the delivery and cross-border trade of an increasing number of energy services.

4. Even in the context of liberalization and internationalization of energy systems, some responsibilities remain within the purview of national governments. For example, they grant or refuse planning permission for installations. They decide on the suitability of starting oil or gas extraction operations in specific geographical areas. They create and oversee standards for health and safety and for environmental protection. They impose and collect taxes on energy activities and are responsible for negotiating and implementing multilateral agreements affecting energy systems.[3]

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[1] *The Economist*, "The Slumbering Giants Awake," *A Survey of Energy*, 10 February 2000: 6–7.

[2] Ibid.

[3] W. Patterson, *Transforming Electricity: Working Paper 1*, "Electricity: International Futures," The Royal Institute of International Affairs, Energy and Environmental Programme, *Electric Futures: Pointers and Possibilities*, 1997: 14.

5. The energy sector is a capital-intensive sector that requires significant investments in infrastructure. With the support of the multilateral financing institutions, developing countries are stimulated to promote trade and investment liberalization to create "an attractive enabling environment" to facilitate investment by transnational energy companies: private-sector participation is frequently necessary to channel the needed capital and expertise.

6. Private investments are particularly necessary in order for developing countries to catch up with their fast-growing demand for energy. World energy demand is projected to grow by 60–65 per cent by 2020, with two-thirds of this increase deriving from China and other developing countries. Growth of energy demand in developing countries is driven both by economic activities and by the legitimate aspiration of the population to achieve minimum comfort levels. Energy investment requirements will amount to 3-4 per cent of world gross domestic product (GDP) over the next two decades.[4] Many governments in developing countries may no longer wish or be able to provide the needed capital investment. On the other hand, multilateral and other official lending institutions are unlikely to provide more than 15 per cent of the funding required for energy investments over the next few decades.[5]

7. Given that more than half of the known reserves of non-renewable resources are in the developing countries, that two-thirds of absolute energy growth will occur in developing countries, and that major investments will take place in those countries to satisfy energy demand, the developing countries will increasingly determine the future scenario in which the industrialized countries will trade and invest in energy.

8. Data for US direct investment and sales through foreign affiliates demonstrate how reform programmes implemented during the 1990s resulted in enormous flows of direct investment that in turn drove growth in sales of services through foreign affiliates. As is shown in Figure 1, sales of services by foreign affiliates of US firms in the utilities business increased by well over 100 per cent a year, from just US$357 million in 1993 to more than US$25 billion in 1998.[6] This rapid growth in investment and services trade directly coincided with major regulatory reforms undertaken in the United Kingdom, Australia and Latin America that permitted US firms to enter the market.[7]

9. Energy services directly affect the economic efficiency, energy equity and environmental preservation of all countries. Energy services are required at each step of the energy process from discovery of a potential energy source to its supply to the final consumer: services constitute the value added in the energy chain. Energy services include upstream services such as exploration, extraction, drilling, derrick building and other construction services. The second stage relates to the transportation of energy, in some cases an undifferentiated segment of maritime transport, but in other cases specific to the energy sector, as in the case of transport of fuel via pipeline. The third, downstream stage includes the services involved in delivering energy to the final consumer.

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[4] R. Thompson, *Integrating Energy Services into the World Trading System*, The Energy Services Coalition, April 2000: 3.

[5] UN Development Programme, UN Department of Economic and Social Affairs, World Energy Council, *World Energy Assessment: Energy and the Challenge of Sustainability*, New York, 2000: 431.

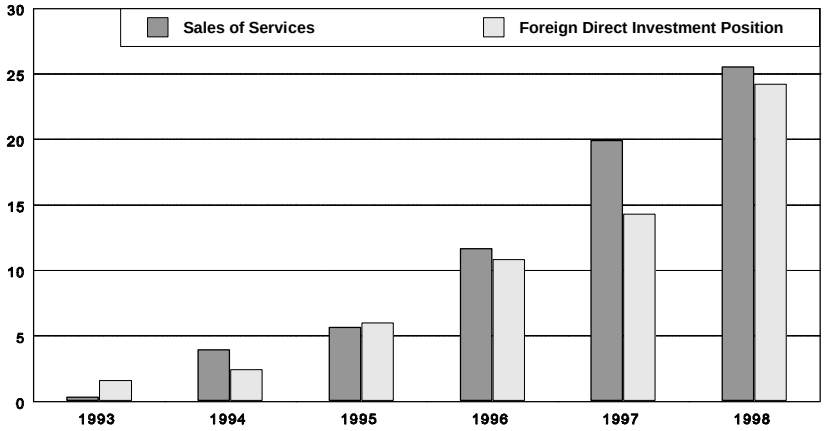
[6] US Department of Commerce, Bureau of Economic Affairs, *US Direct Investment Abroad: Operations of US Parent Companies and Their Foreign Affiliates* and *US Direct Investment Abroad: Detail for Historical-Cost Position and Related Capital and Income Flows*, at www.bea.doc.gov.

[7] C. Melly, "Electric Power and Gas Market Reform and International Trade in Services" in *Energy and Environmental Services: Negotiating Objectives and Development Priorities*, UNCTAD (DITC/TNCD/2003/3).

Those are the "traditional" services that have conventionally been supplied to the energy industry. However, now they are becoming increasingly technology-intensive and are provided in a

FIGURE 1

Sales of services by foreign affiliates of US utility companies*



*The utilities category includes power, natural gas, and water services.

Source: US Department of Commerce, Bureau of Economic Analysis, US Direct Investment Abroad Series, 1993–98.

competitive environment. A completely new set of services, which could be defined as "emerging" services, are emerging from the structural reform of the energy sector. These include the operation of power pools, the provision of continuous information on energy prices, energy trading and brokering, and energy management. Other emerging services include those related to greenhouse gas emissions reductions and trading of emission rights.

10. Energy services have several dimensions: a social dimension (which includes the issues of access to energy, employment, local development, urban migration and national security); an economic dimension (which includes the use of energy, energy intensity, energy production and consumption, taxes and subsidies, and energy security); and an environmental dimension (which includes climate change considerations, air pollution, hazardous waste elimination, the exhaustion of non-renewable energy resources, and the risks of nuclear accidents). These three dimensions are closely related and have to be kept in mind during the GATS negotiations.

INTERNATIONAL TRADE IN ENERGY SERVICES AND TRADE BARRIERS

11. Energy services may be traded through Modes 1 (cross-border trade), 3 (foreign commercial presence) and 4 (movement of natural persons). Mode 1 is of relevance especially for online trading and brokering services and professional services that can be delivered by mail or electronically, such as consulting or legal services. Mode 1 also covers services related to the cross-border transmission of electricity and gas through pipelines and interconnected grids. Mode 3 is of paramount importance since it covers all forms of foreign commercial presence, such as build-operate-transfer (BOT) and independent power producer (IPP).[8] Mode 4 includes the

[8] In the BOT (build-operate-transfer) system, a government invites the contractor to finance a power facility, build and operate it, and sell the output to the national system over a period of time long enough (usually 20 years) to recover its costs and earn an appropriate return on its investment. When this period expires, ownership of the plant is transferred from the builder-operator to the host government, which continues to operate it. In the IPP (independent power producer) system, a generating plant sells its output to the system and operates in compliance with the

movement of skilled professionals who deliver technical and managerial services, as well as the movement of semi-skilled and unskilled personnel needed, for example, for the construction and upgrading of facilities and grids.

12. In penetrating foreign markets, international providers of energy services face the traditional barriers that services suppliers may face in other sectors, as well as some specific barriers. (See Table 1.)

TABLE 1

Trade barriers

Mode of supply	**General**	**Specific**
Mode 1	Need to have a local professional certify the legal, engineering or consultancy work provided from abroad.	Limited access to the transmission grid, limited transit rights, unfair or non-transparent transmission fees, cross-border trading of energy subject to commercial presence, and limitations on the cross-border transfer of capital to finance energy-related transactions.
Mode 3	Limitations on foreign share, nationality requirements for top officials and/or for the majority of the directors, limited possibilities for foreigners to use the courts in the event of disputes with local partners, limitations on foreign ownership of facilities or land, preference for local firms, and public procurement rules. Opaque, discriminatory and arbitrary technical regulations and other requirements.	Difficulties in gaining uncontrolled access, at a competitive price, to transmission and distribution networks and other essential infrastructure due to pre-existing exclusive rights and monopolies or integrated incumbents. Opaque, discriminatory and arbitrary rules on authorization and tendering procedures for the construction and operation of new extraction, generation and transport capacity.
Mode 4	Difficulties in obtaining visas and work permits, non-recognition of professional qualifications obtained abroad, time limitations on the presence of foreign experts, and economic needs tests.	

system, but is not owned by the system. An IPP owner-operator is under no obligation to surrender title to the plant during its lifetime or limit its earnings to any level previously agreed on with the government; therefore, it is under significantly less stringent control by the host government than under the BOT system.

Energy services in the GATS

13. The WTO Services Sectoral Classification List (document MTN.GNS/W/120) does not include a separate comprehensive entry for energy services. The United Nations Provisional Central Product Classification (CPC) also does not list energy services as a separate category. Annex I, however, provides a compendium of energy-related products listed under different headings in the CPC, including energy-related services. Only three specific energy-related activities are explicitly listed as separate subsectors in the WTO classification list.[9]

14. Two entries are related to petroleum and gas. One is Transportation of Fuel under the broad category of Transport Services. The CPC describes it as "transportation via pipeline of crude or refined petroleum and petroleum products and of natural gas" (subclass 71310). The second is Services Incidental to Mining, which falls under the category of Other Business Services and relates to upstream activities for oil and gas. The CPC describes it as "services rendered on a fee or contract basis at oil and gas fields, e.g. drilling services, derrick building, repair and dismantling services, oil and gas well casings cementing services" (Division 88). However, mineral prospecting services, oil and gas field exploration and seismic and geological surveying services are excluded from this Division and are classified under Geological, Geophysical and Other Scientific Prospecting Services (subclass 86751), under Engineering-Related Scientific and Technical Consulting Services (class 8675). The third specific entry relates to downstream activities for gas and electricity: Services Incidental to Energy Distribution (CPC 88700), under Other Business Services. It refers to "transmission and distribution services on a fee or contract basis of electricity, gaseous fuels and steam and hot water to household, industrial, commercial and other users". With respect to those three specific entries, the existing commitments that WTO Members have undertaken are very limited. Other relevant commitments can be found in the services sectors that cover, among others, energy-related activities – such as architectural and engineering services, scientific and technical consulting services, construction services, and several financial services – and in the horizontal commitments applying across all sectors.

15. When the W/120 list was designed, the energy sector was by and large run by state-owned companies that performed all the functions needed for the supply of energy within their home markets. Very little international trade was taking place in the area, and the private sector had limited participation in the energy business. Classification efforts during the Uruguay Round concentrated on those sectors where international trade was already significant and that looked promising for investors. The energy sector was not among them. Now the situation has changed completely, and a more appropriate classification of the energy services sector, which would take into account the new patterns and dynamism of the sector, could help WTO Members to schedule meaningful liberalization commitments and avoid confusion and unpredictability regarding the actual possibility of delivering energy services effectively.

[9] This section draws on S. Zarrilli, "International Trade in Energy Services and the Developing Countries" in *Energy and Environmental Services: Negotiating Objectives and Development Priorities*, op. cit.

BOX 1

Negotiating proposals: Common elements

- Improved market access in the energy services sector can have beneficial effects for all countries.
- Negotiations on liberalization of the energy services sector should not address the issue of ownership of natural resources.
- The energy sector will continue to be regulated to ensure the achievement of public goals.
- Countries are in different phases of regulatory development; therefore, their commitments will reflect the existing levels of market reform.

The ongoing GATS negotiations

16. Negotiating proposals relating to the energy services sector have been submitted during the first phase of the GATS negotiations by Canada, Chile, Cuba, the European Union, Japan, Norway, the United States and Venezuela.[10]

17. Beyond the elements that are common to all negotiating proposals (see Box 1), some of them share a number of recommendations; they include, as well, some specific suggestions (see Table 2). The Cuban, Norwegian and Venezuelan proposals refer to the need to promote trade for all and to secure a share of international trade for developing countries. The United States' and Norway's proposals call for the development of a reference paper in line with the Reference Paper to the GATS Agreement on Basic Telecommunications Services. The purpose of such a paper would be to ensure transparency in the formulation and implementation of rules, as well as non-discriminatory third-party access to and interconnection with energy networks and grids, and to prevent anti-competitive practices for energy services in general. The Japanese proposal also refers to the need for a multilateral framework for domestic regulations to ensure a competitive environment, and non-discriminatory, fair and transparent access to the network. The European Community's proposal, without mentioning the need for a multilateral instrument such as a reference paper, invites WTO Members to establish an appropriately transparent, objective and pro-competitive regulatory framework for the energy services sector. The European Community, Japan and the United States make reference to energy activities irrespective of the energy source. The proposals of the United States and Japan recommend the elimination of tariffs and non-tariff barriers for energy-related goods.

18. The US proposal includes an "Index for Classification of Energy Services" to identify broad categories that contain energy services, under the W/120 and the CPC, and suggests that the index be used to negotiate the broadest possible liberalization commitments. The European Community proposes a number of sectors and subsectors where commitments should be made in all modes of supply, covering a broad spectrum of services. Norway suggests that the entire chain

[10] World Trade Organization, *Communication from Canada: Initial Negotiating Proposal on Oil and Gas Services*, S/CSS/W/58, 14 March 2001; WTO, *Communication from Chile: The Negotiations on Trade in Services*, S/CSS/W/88, 14 May 2001; WTO, *Communication from Cuba: Negotiating Proposal on Energy Services*, S/CSS/W/144, 22 March 2002; WTO, *Communication from the European Communities and Their Member States: GATS 2000: Energy Services*, S/CSS/W/60, 23 March 2001; WTO, *Communication from Japan: Negotiation Proposal on Energy Services, Supplement*, S/CSS/W/42/Suppl.3, 4 October 2001; WTO, *Communication from Norway: The Negotiations on Trade in Services*, S/CSS/W/59, 21 March 2001; WTO, *Communication from the United States: Classification of Energy Services*, S/CSC/W/27, 18 May 2000, and *Communication from the United States: Energy Services*, S/CSS/W/24, 18 December 2000; WTO, *Communication from Venezuela: Negotiating Proposal on Energy Services*, S/CSS/W/69, 29 March 2001, and *Negotiating Proposal on Energy Services – Addendum*, S/CSS/W/69/Add.1, 15 October 2001.

TABLE 2

Main features of the negotiating proposals

Country	Coverage of negotiations/ liberalization	Competition rules	Energy sources	Technology	Additional elements
Canada	Oil and gas services				Enhancing regulatory transparency; facilitating trade in energy goods
Chile	Broad coverage				Subsidies
Cuba	Flexibility to liberalize specific segments according to development needs			Access to technology	Trade opportunities for all; enhancing developing countries' competitiveness
European Community	Broad coverage	Domestic pro-competitive framework	Energy neutrality		Facilitating the movement of natural persons
Japan	Broad coverage	Multilateral pro-competitive framework	Energy neutrality		Enhancing regulatory transparency; facilitating trade in energy goods
Norway	Broad coverage	Reference paper			Trade opportunities for all
United States	Broad coverage	Reference paper	Energy neutrality	Technology neutrality	Facilitating trade in energy goods, the temporary entry of business persons, and the movement of electronic information and transactions
Venezuela	Flexibility to liberalize based on energy sources; phase of process; "core" and "non-core services"				Trade opportunities for all; strengthen-ing the capacity of developing-country providers.

of energy activities be considered for liberalization and a preliminary "checklist" for energy services be used as a negotiating tool. The Venezuelan proposal allows maximum flexibility to WTO Members to schedule their commitments by suggesting a new classification of the sector based on three criteria: the sources of energy, the phases of the energy process, and a distinction between "core" and "non-core "energy services. The proposal by Canada focuses mainly on upstream oil and gas services. The Chilean proposal recommends that the issue of subsidies

should be addressed. The Cuban proposal stresses that the negotiations should enhance the competitiveness of developing countries' energy services suppliers and improve their access to technologies on favourable commercial terms.

19. The Guidelines and Procedures for the Negotiations adopted by the WTO Council for Trade in Services, and later reaffirmed in paragraph 15 of the Doha Ministerial Declaration,[11] set the request-offer approach as the main method for negotiating specific market access commitments in services. It was agreed that Members should submit initial requests by 30 June 2002 and initial offers by 31 March 2003. While developed countries have by and large met the deadline regarding the requests and are, at the time of writing, presenting their initial offers, most developing countries missed the 30 June 2002 deadline and are still in the process of formulating their requests, at a time when they should be ready to present their initial offers. Actually only a limited number of them were able to comply with the 31 March 2003 deadline and submit initial offers. Lack of human resources, the complexities involved in identifying concrete trading interests at the national level, and, in some cases, inadequate understanding of GATS may be among the main reasons for the delay.[12]

20. Energy services have been included in the requests of several developed countries. Some of them have adjusted their requests to the specific trade partners receiving them; others have presented the same request to all countries, with the exception of the least developed countries (LDCs). Still other countries have addressed "tailor-made" requests to their main trade partners and a kind of "one-size-fits-all" request to the remaining countries.

21. When analyzing requests received, countries should evaluate the levels of commitment entailed in the requests, since different kinds of negotiating objectives may be included in different kinds of requests:

- seeking clarification and technical improvement in the scheduling of existing commitments
- seeking full implementation of existing commitments
- seeking binding of existing commitments
- seeking the adoption of further liberalization commitments by eliminating existing limitations and/or adding new commitments in sectors/subsectors or modes of supply still unbound
- seeking the elimination of MFN exemptions
- seeking additional commitments under Article XVIII.[13]

One or more of the above-mentioned objectives can be furthered by a single request.

22. Four main points emerge from the analysis of the requests on energy services. First of all, they are rather ambitious and by and large call for a broad liberalization of the sector under Modes 1, 2 and 3. The requests closely reflect the rationale and underlying business interests included in the negotiating proposals submitted during the first phase of the services negotiations.

[11] World Trade Organization, *Ministerial Declaration*, adopted on 14 November 2001, WT/MIN(01)/DEC/1, 20 November 2001.
[12] L. Abugattas Majluf, "GATS Negotiations on Specific Commitments: Issues for Consideration by Developing Countries," *Bridges*, November/December 2002: 3–4.
[13] Ibid.

23. Second, they seem to "expand" the scope of the GATS by including concepts that do not belong to it. For example, reference is made to the notion of "technological neutrality". This notion is not developed in the GATS but was introduced in the negotiations on basic telecommunications in order to expand the existing coverage of commitments.[14] This approach could affect WTO Members' flexibility to open their energy markets and retain the right to limit the coverage of their commitments depending on the technology used. Considering that renewable energy sources are becoming increasingly attractive from an environmental point of view and increasingly competitive from a cost point of view,[15] in comparison with non-renewable energy sources, the concept of "technological neutrality" and its inclusion in the liberalization commitments may have crucial business repercussions in the future. Since requests in other services sectors include this notion, a relevant question may be whether it would be more appropriate to discuss it on a sectoral basis or as a horizontal issue. Reference is also made to the notion of "neutrality of energy source". Considering that some energy sources, such as oil, have political and strategic sensitivity, which is often reflected in national legislation, energy-source-neutral requests may limit the flexibility of countries to liberalize their markets according to their strategic priorities and related legislation.

24. Third, some requests refer to the need for additional commitments in the energy sector, such as the setting up of an independent regulatory system separate from, and not accountable to, any supplier of energy services and/or other government agency with energy interests; or the establishment of non-discriminatory, objective and timely regulatory procedures governing transportation and transmission of energy. These elements of the requests seem to interfere with the work on domestic regulations carried out by the WTO Working Party on Domestic Regulations.

25. Fourth, some requests impinge on classification issues that are being dealt with in the WTO Committee on Specific Commitments. By calling for a broad liberalization of the energy sector, the requests go far beyond the three energy-related entries included in the W/120 list and seek liberalization commitments in other services sectors which, although relevant for the energy sector, have several other end uses. In some cases, the requests propose a unilateral interpretation of what should be included under specific W/120 entries.

26. Within the initial offers presented by the developed countries at the time of writing, two include enhanced market access for energy services. The United States is offering new commitments for pipeline storage of fuels, storage and warehouse services, bulk storage of liquids and gases, and some technical testing and analysis services. Mirroring its negotiating proposal, the United States' offer does not contain any commitments on production of energy, mining, or ownership of energy resources.

[14] The thrust of this notion is that where no specific references are made to the type of technology used in providing basic telecommunications services, specific commitments would automatically cover all means of technology (i.e. services transmitted via all types of cable, wireless or satellites). Nevertheless, where Members applied different measures in regulating market access or national treatment, depending on the type of technology, WTO Members scheduled them in their commitments.

[15] Technological advances have driven down the cost of electricity generated from alternatives to fossil fuels. During the last 30 years, on average, it has cost about 2.5 cents a kilowatt hour to generate power from coal or gas. Wind power, in contrast, now costs just under 4 cents a kilowatt hour, down from 10 cents in 1980. In 1980 it cost a dollar to produce one kilowatt hour of solar power; now it costs 20 to 25 cents. See *International Herald Tribune,* "Alternative Energy: If Not Now, When?" 8–9 March 2003.

27. Australia is extending current commitments from consultancy services incidental to mining, to all services incidental to mining, such as (on a fee or contract basis) drilling services, repair and dismantling services, and well-casing services. In addition, all mining-related scientific and technical consulting services (e.g. geological prospecting, surveying services, and mapping services) will be covered, as will mining site preparation (e.g. tunneling).

RISKS AND BENEFITS, ESPECIALLY FOR THE DEVELOPING COUNTRIES, OF OPENING THE ENERGY SERVICES MARKETS

Implications for developing countries

28. A series of specific questions seem to confront developing countries in the ongoing multilateral negotiations on energy services. On the one hand, they aim at achieving more reliable and efficient access to energy and energy security; on the other hand, at obtaining a greater share of the energy "business". For most developing countries, improved access to energy means expanding supply in line with their economic growth. This implies an increasing need for foreign investments and the establishment of more competitive and liberalized energy markets. In the experience of developed countries, however, competition and liberalization have tended to reduce costs but also increase the risks of local shortages to consumers, mainly because of under-investment. The inevitable consequence of competition is risk to investment, which translates into significantly increased required rates of return on capital. If liberalization creates energy markets that, while competitive in the short term, are too risky to justify investment, especially in new generating capacity, then there is doubt about their sustainability.[16] These risks should, therefore, be addressed at the outset. As for achieving greater participation in the energy business, energy-exporting developing countries should combine exports of energy sources with enhancing professional capacities, human resources training and technological improvements in the services segment of the energy industry. Those developments would help create export opportunities for local firms in the energy services sector and related sectors, as well as overall economic growth and diversification.

29. From a trade negotiation perspective, the question is whether *additional provisions* should be attached to the liberalization commitments. GATS Article XIX:2 permits a WTO Member to attach such access conditions aimed at achieving the objectives referred to in Article IV. As Article IV refers to strengthening the domestic services capacity of developing countries, those countries could link opening of their markets to the objective of improving their capacity in the sector.

30. It should be noticed that the proposals for additional commitments involve two different approaches. Under the first approach, countries scheduling liberalization commitments accept additional obligations – for example, to ensure transparency or avoid anti-competitive practices – aimed at providing effective access for foreign suppliers. Under the second approach, WTO Members and especially developing countries, when opening their markets to foreign services suppliers, attach conditions aimed at achieving the objectives referred to in Article IV of GATS, such as transfer of technology and access to distribution channels and information networks. In

[16] J. V. Mitchell, *Renewing Energy Security*, The Royal Institute of International Affairs, July 2002: 6; and S. Thomas, "The Seven Brothers," *Energy Policy* 31, 2003: 397.

the latter case, the additional commitments would be accepted by foreign suppliers benefiting from market access; in the former case, the additional commitments would be imposed on the countries liberalizing their own domestic markets.

31. The impact of liberalization commitments on energy services differs between countries. Some energy-producing developing countries have adopted successful policies aimed at developing a strong domestic energy services sector, especially in the upstream segment of the industry (e.g. exploration, extraction, transport) as a stimulus to overall development. Those countries may be looking for export opportunities for their firms through the opening of foreign energy services markets. Other energy-producing countries have not yet developed a domestic energy services sector and may be concentrating on making sure that the presence in their territories of foreign firms/suppliers providing energy services will contribute to the development or strengthening of domestic capacities in the sector. The requests and offers process in which WTO Members are currently engaged reflects commercial interests as well as strategic considerations. Developing countries have made few commitments in energy-related services in their GATS schedules. They thus retain the flexibility to liberalize where this is deemed most consistent with domestic energy policy objectives, and to seek important reciprocal concessions.

Liberalization of energy markets and policy goals

32. There are some potential tensions between the goals that governments wish to pursue by opening their energy sector. Long-term security of supply – a crucial goal for developing countries that still face very low rates of access to commercial energy for their population - implies the need for large investments and the consequent need to provide incentives to potential investors. There may be conflicts between ensuring competitive conditions and cost efficiency in the energy markets on the one hand, and attracting enough investments aimed at improving quality and extending the infrastructure on the other. A certain degree of in-house preference in the electricity and gas segments, for example, may be needed to achieve the goal of long-term security of supply. Indeed, when a gas merchant or a power company keeps a large degree of freedom in using its transport system for strategic and commercial purposes, there are greater incentives to embark on incremental investment projects. However, this would lead to less competition since competitors' access to the network would be partially hindered. Considering that in most industrialized countries the energy infrastructure was developed under a monopoly regime, one option for developing countries could be to emphasize measures aimed at attracting investment, especially in young or nascent markets.

33. There is also a potential tension between reducing costs and ensuring security of supply. The transition to liberalized and competitive markets for gas and electricity has in many countries involved cost-saving reductions in spare network and generation capacity. In the oil market, competition, "just-in-time" deliveries and network rationalization have reduced spare capacity, and with it the flexibility of distribution to final consumers. These risks can be limited by policies that impose reserve capacity in the network systems and require stock to be held near the point of consumption.[17]

[17] Ibid.

34. In conclusion, the benefits associated with the liberalization of the energy markets can be yielded, particularly by developing countries, if appropriate domestic policies are in place and if countries enjoy the "policy space" to conceive and implement overall development policies, of which “social efficiency” is a primary concern. Private profitability, market efficiency and cost reduction have to be reconciled with security of supply, public service obligations and development goals. Otherwise, liberalization of the energy markets may magnify the existing problems of access to energy, increase equity imbalances and jeopardize the prospects of sustainable development, especially for developing countries.

35. Immediate beneficiaries of liberalization may include *public entities* – mainly governments that raise funds for government treasuries through the sale of assets, but also banks that give advice on privatization; *private entities* such as investors who purchase shares in system facilities being privatized, foreign companies wanting to own part or all of a liberalized system abroad and create strategic alliances with local firms, entrepreneurs who add facilities to a liberalized system, manufacturers able to supply new technology, companies that provide wholesale and retail activities, and innovative entrepreneurs seeking new business opportunities in foreign countries (these are by and large services providers); and *consumers*, at present especially large users whose market power often allows them to negotiate more advantageous conditions (in terms of cost, quality and choice of services being offered) from suppliers in a liberalized system, but in the future most users.[18]

Public service obligations

36. Liberalized energy markets alone cannot be expected to meet the needs of the most vulnerable groups of the population or to protect the environment. Private companies, if free to choose, would most likely invest in utilities serving the cities and large urban areas and would cherry-pick profitable networks. Therefore, targeted government policies are needed to harness market efficiency in the public interest.[19]

37. Many governments consider electricity a public service. In the previous monopoly system, governments mandated provision of electricity to the poor and to rural areas where users were dispersed and network connections therefore more costly. Tariffs might have a structure in which all users of a given category, such as households, pay the same price for a unit of electricity, no matter how much it costs to supply them. A monopoly operator would be subject to the obligations to supply and connect. Liberalization, and in particular the introduction of competition, may jeopardize such arrangements. Unless forced to do so, private companies, which compete for business, are not particularly willing to deliver services that are a burden for their balance.[20]

[18] W. Patterson, *Transforming Electricity: Working Paper2*, “Electricity: Liberal Futures,” The Royal Institute of International Affairs, Energy and Environmental Programme, *Electric Futures: Pointers and Possibilities*, 1997: 2.
[19] This section draws on S. Zarrilli, op. cit.
[20] W. Patterson, C*an Public Service Survive the Market? Issue for Liberalized Electricity*, The Royal Institute of International Affairs, Briefing Paper New Series No. 4, July 1999.

38. Several countries that have opened their electricity markets to competition have included in their legislation specific provisions related to consumer protection.[21] Given that a major problem that developing countries wish to tackle by liberalizing their power markets is inadequacy of electrical supply, they may consider including a clear reference to the provision of public services when private actors are in charge of supplying electricity. Qualifications to market access commitments under GATS could focus on measures aimed at ensuring equity, such as maximum prices for consumers, uniform fees charged across all regions regardless of costs, and provision of energy supply to remote rural areas even when this is unprofitable. However, if developing countries compete among themselves to attract private investment in the power sector, companies may be reluctant to accept public service obligations. Inclusion of these conditions in a multilaterally negotiated instrument, such as an Annex applicable to the sector, could ensure that developing countries can obtain benefits they might not be able to negotiate effectively with stronger trading partners or investors in a bilateral context.

Transfer of technology

39. Trade in services is a potential vehicle for transfer and dissemination of technology. Cross-border supply (Mode 1) involves the actual passage of the technology that is embedded in the imported service from the innovating country to the receiving country. This implies a *passive* technology spillover: as long as the import costs less than its opportunity costs (including R&D to develop the incorporated technology), there will be a gain from having access to the cross-border supply. Potentially more important are the *active* knowledge spillovers (learning and adaptation of the embedded technology), which might disseminate from Modes 3 (commercial presence) and 4 (movement of natural persons). In particular, the temporary presence of highly skilled foreign personnel and the establishment of a foreign commercial presence may provide opportunities for person-to-person communication and learning by doing. This can occur through formal training and/or informal knowledge sharing. It could thus facilitate the transfer and dissemination of codified technological knowledge and, even more importantly, non-codified (tacit) knowledge, typically pertaining to technical expertise and professional know-how. Additionally, as far as Mode 4 is concerned, interaction between domestic and foreign firms (backward and forward linkages) may favour technological diffusion. Table 3 summarizes the main channels for technology transfer for each mode of supply. The analysis is limited to supply modes technically relevant to trade in energy services.

TABLE 3
Channels of technology transfers per mode of supply

Mode of supply	Channels of technology transfer	Spillover
Cross-border (Mode 1)	Using technology-intensive services	Passive
Commercial presence (Mode 3)	Person-to-person communication or learning by doing: Formal training Informal knowledge sharing Backward/forward interactions with domestic firms	Active
Presence of natural persons (Mode 4)	Person-to-person communication or learning by doing: Formal training Informal knowledge sharing	Active

[21] For example, Article 3.2 of the EC Electricity Directive (Directive 96/92/EC) states that "Member States may impose on undertakings operating in the electricity sector, in the general economic interest, public service obligations which may relate to security, including security of supply, regularity, quality and price of supplies and to environmental protection".

40. The GATS framework provides developing countries with sufficient flexibility in pursuing active transfer of technology policies, especially through Articles IV and XIX.[22]

41. In the context of the GATS negotiations, a WTO Member may include some terms, limitations and conditions in its schedule of specific commitments in order to attain these complementary objectives: cross-border technology transfers, absorption of transferred technology[23] and its diffusion.[24] Developing countries may thus wish to subject either horizontal or specific commitments to conditions and limitations on MA[25] and NT,[26] with a view to

(a) attracting a greater supply of foreign technology
(b) encouraging interactions between domestic and foreign firms
(c) supporting training of a domestic labour force.

42. ***(a) Attracting a greater supply of foreign technology:*** Under the offer mode, countries, especially developing ones, may wish to liberalize those types of service transactions that embody the highest potential for technology diffusion. To attain this objective, when scheduling specific commitments, they may tailor the sectoral coverage in this direction. Alternative policies can be used. For example, countries might attach technological qualifications to the services transactions being liberalized. This could be indicated either in the sector-specific commitments section (if the technology requirements pertain only to the listed energy services) or in the horizontal commitments part (if they apply across sectors). Technology specifications might fit in the additional commitment (AC) column of the Schedule, where positive qualifications and standards are typically entered. Alternatively, countries might consider providing fiscal incentives to attract specific types of technology. These incentives can take the form, for Mode 3, of tax reductions or exemptions on profits, capital, value-added, R&D expenditure, and so on. Unless they have discriminatory or market access implications, there is no need to indicate them in the National Treatment (NT) or Market Access (MA) column of the Schedule. Technology-related fiscal incentives accrue to specific identifiable entities and amount to a financial transfer in their favour. Therefore, questions may arise as to whether such measures are consistent with the build-in commitment contained in GATS Article XV on subsidies.

43. ***(b) Encouraging interactions between domestic and foreign firms*** *(relevant to Mode 3 only):* This can occur through:

[22] For a listing of provisions relating to technology transfer in WTO agreements, see WTO, *Communication from Cuba, Egypt, Honduras, India, Indonesia, Kenya and Zimbabwe*, WT/WGTTT/3/Rev.121, October 2002.
[23] Domestic absorptive capacity relates to learning (how to use the technology) and adaptation (fitting the foreign technology to local conditions). A country's absorptive capacity is determined, *inter alia*, by the following factors: its educational system; domestic R&D infrastructures; the technology gap between the imported technology and the level of domestic technological advancement; and the managerial and organizational ability of local firm managers.
[24] Internal diffusion means the spread of the new technology within the receiving country. Internal diffusion of technology requires additional conditions pertaining to labour mobility and the efficiency of financial markets in the receiving country. The knowledge accumulated by local employees of foreign service firms will diffuse internally into the local market if these employees go to work with a local firm or start up a new business. Local firms may not be able to offer the wage required to attract trained workers from foreign firms. On the other hand, if financial markets are inefficient, workers may face liquidity problem that would hinder their ability to start a new business.
[25] Market access commitments clarify the rights of foreign firms. When a WTO Member undertakes a commitment, it must indicate for each mode of supply what limitations, if any, it maintains on market access. Article XVI:2 of the GATS lists six categories of restrictions that may not be adopted or maintained unless they are specified in the schedule of specific commitments.
[26] National treatment is defined as a treatment no less favourable than that accorded to similar domestic services and services suppliers. A WTO Member wishing to maintain measures providing more favourable treatment of nationals must inscribe these limitations in its schedule of specific commitments. Unlike in trade in goods, national treatment in services is not a general obligation but a negotiated commitment.

i. *Local content/sourcing requirements.* Technology transfers can occur, *inter alia*, through development of backward linkages between foreign suppliers and the domestic economy. This can be fostered, for example, by encouraging foreign companies to source services inputs from local firms. A WTO Member wishing to maintain or introduce these measures must indicate such limitations, for Mode 3, in the NT column of its Schedule, either in the specific section (if the requirement applies only to the listed energy activities) or in the horizontal section (if it is valid across sectors). Local content requirements may be specified, *inter alia*, in terms of particular services inputs or in terms of volume or value of inputs. They can be structured as mandatory or as necessary to obtain an advantage. Local content requirements alone are not sufficient to promote backward linkages. Foreign firms in particular tend to have little information about local suppliers. Governments can intervene to address this market failure by disseminating information on domestic suppliers.

ii. *Partnership agreements.* One legal issue that arises in most cases of technology transfer is whether to restrict investments involving technology transfer to legal forms that are more likely to favour technology diffusion. It might seem that partnership agreements (technology licensing agreements, franchising and joint ventures) entail a larger technology spillover component than, for instance, direct investments through a wholly owned subsidiary. In the former case, technological knowledge is shared with the local partner or licensee; in the latter case, it remains internalized within the foreign enclave. As far as the relative importance of licensing and joint ventures, there is some evidence that joint venture arrangements may be more instrumental in channelling technology transfer.[27] At the same time, there is evidence suggesting that joint ventures may not necessarily be instrumental for the transfer of more sensitive and state-of-the-art technology.[28] Measures aimed at promoting business alliances with foreign suppliers would amount to "measures that restrict or require specific types of legal entity or joint venture through which a service supplier may supply a service" (GATS Article XVI:2(e)). Accordingly, partnership requirements may not be adopted or maintained unless clearly specified in the Schedules. They should be indicated, for Mode 3, in the MA column of the Schedule, either in the sector-specific section (if the requirements pertain only to the inscribed energy functions) or in the horizontal part (if the limitations apply across sectors).

iii. *Research partnerships.* One of the most effective ways to enhance absorptive capacity in the host country is to unleash synergies between universities and research centres on the one hand and foreign companies on the other. When scheduling commitments, countries may thus wish to specify conditions on MA and NT aimed at fostering business linkages between universities/research institutes and foreign service suppliers. If these measures amount to partnership requirements, they should be clearly inscribed, for Mode 3, in the MA column of the Schedule. If they result in less favourable treatment of foreign service suppliers, they should be indicated, for Mode 3, in the NT column of the Schedules. Moreover, governments may wish to promote geographical proximity among universities, research centres and foreign service companies. Locational concentration,

[27] S. Marjit and A. Mukherjee, "Technology Transfer under Asymmetric Information: The Role of Equity Participation," *Journal of Institutional and Theoretical Economics*, 2001, 157, 2: 282–300.
[28] Theodore H. Moran and Charles Pearson, "Tread Carefully in the Field of TRIP Measures," *The World Economy*, 1988, 11(1): 119–34.

when an integral part of a coherent set of policy measures, may encourage the development of clusters and of science-based industrial parks with high-quality infrastructures. This can favour technology transfer by allowing, *inter alia*, person-to-person communication. A variety of measures can be used to promote geographical proximity among scientific institutes and foreign commercial presence. For instance, eligibility for tax incentives can be limited to persons established in a particular geographical subdivision, where universities or institutions of higher learning are settled. A Member wishing to introduce similar conditions with respect to foreign establishment shall indicate these limitations for Mode 3 in the NT column of its Schedule. If these qualifications are formulated in terms of MA restriction, they can be entered as additional commitments.

44. ***(c) Supporting training of a domestic labour force:*** Bringing foreign experts in contact with domestic workers enhances human capital formation and knowledge sharing. Local personnel requirements are a viable tool to encourage active technology spillovers from foreign commercial establishment in the receiving country (Mode 3 of supply). When scheduling commitments, countries may require that certain percentage of personnel be locally employed. The review of Schedules reveals a certain degree of flexibility as to where to list local personnel requirements. In certain cases, local employment requirements are regarded as MA restrictions and listed in the MA column.[29] In other cases, they are deemed to imply NT implications and are listed in the NT column.[30] If phrased in terms of MA restriction, they should be indicated, for Mode 3, in the MA column of the Schedule. When specified for executives, senior managers or directors, they would likely amount to conditions that discriminate in favour of nationals, and should be indicated, for Mode 3, in the NT column of the Schedules.

45. Human capital accumulation may happen simply through learning by doing, but might also involve formal training. Developing countries may wish to attach additional specifications on their MA commitments to encourage foreign suppliers to provide formal training for domestic workers and managers. These conditions can be specified for Modes 3 and 4 of supply. They are likely to fall within the MA column, in either the horizontal or the specific section. Examples of training requirements can be drawn from existing practice.[31]

[29] Venezuela requires that 90 per cent of the personnel of an enterprise, whether employees or manual workers, must be Venezuelan nationals (Mode 4, MA column, horizontal section). Panama specifies in its schedule (Modes 3 & 4, MA column, horizontal section) that "Not less than 90% of the ordinary workforce of any employer must consist of Panamanian workers, or foreigners with a Panamanian spouse or with ten (10) years of residence in the country. Foreign specialized or technical personnel may not exceed 15% of the total workforce. Notwithstanding, a higher proportion of foreign specialized or technical personnel may be permitted for a fixed period of time, on previous recommendation of the respective Ministry and approval of the Ministry of Labour and Social Welfare". Nicaragua (Mode 4, MA column, horizontal commitments) requires employers to employ a minimum of 75 per cent of Nicaraguan employees.

[30] For instance, Switzerland has specified (Mode 3, NT column, horizontal section) that "The majority of the board of directors of a 'joint stock company'…must be Swiss citizens with domicile in Switzerland (except for holding companies). At least one manager of a 'corporation with limited liability'… must have his domicile in Switzerland. The administrators of a 'co-operative society'… must be composed of a majority of Swiss citizens with domicile in Switzerland… The establishment of a branch requires a representative (natural person) with domicile in Switzerland who is duly authorized by the company to fully represent it. The establishment of a commercial presence by natural persons or in the form of an enterprise without juridical personality according to Swiss law…".

[31] In Nicaragua's Schedule (Mode 4, MA column, horizontal section) it is specified that "The supply of services by suppliers not resident in Nicaragua is limited to senior and specialized personnel in connection with a commercial presence and it must contribute to the training of Nicaraguan personnel in the specialized field of activity concerned". The Dominican Republic requires that "senior and specialized staff associated with commercial presence … must contribute to the training of Dominican personnel in the areas of specialization concerned" (Mode 4, MA column, horizontal section). Zambia's Schedule includes a requirement that "Enterprises must also provide for training in higher skills for Zambians to enable them to assume specialized roles" (Mode 4, MA column, horizontal section).

46. Table 4 summarizes, for merely illustrative purposes, specific qualifications that countries may wish to list in the relevant entries of their Schedule to enhance technology transfer and domestic absorptive capacity. However, additional requirements having to do with the domestic entrepreneurial climate need to be met. These ultimate conditions would go beyond the scope of GATS negotiations.

TABLE 4

Measures related to technology transfer

Instrument	**Policy objective**	**Mode of supply**	**Likely entry in the Schedule**
Sectoral coverage breaking-down	Attracting a greater supply of foreign technology	All	Sector column
Technology specifications	Attracting a greater supply of foreign technology	All	MA/AC column
Fiscal incentives: I- Tax reductions or exemptions on profits, capital, value-added, R&D expenditure, etc. II- Tax reductions or exemptions on imports or specific technology equipment	Attracting a greater supply of foreign technology	I- Mode 3 II- All	---
Local content/sourcing requirements	Encouraging interactions between domestic and foreign firms	Mode 3	NT column
Joint venture and other partnership requirements	Encouraging interactions between domestic and foreign firms	Mode 3	MA column
Research partnership Fiscal incentives	Fostering linkages between foreign firms and domestic univ-ersities and research centres	Modes 3 and 4	MA/NT column
Local personnel requirements (employ-ees and manual workers)	Supporting training of domestic labour force	Modes 3 and 4	MA column
Local requirements for senior managers, board of directors, stakeholders	Supporting training of domestic labour force	Modes 3 and 4	MA/NT column
Training requirements	Supporting training of domestic labour force	Modes 3 and 4	MA column

REGULATORY ISSUES

47. Special attention should be paid to regulatory issues and restrictive business practices and their implications for sectoral requests and offers being tabled in the context of the GATS negotiations. These issues can be addressed from two different perspectives. First, energy service liberalisation entails fundamental structural changes. To make commercially meaningful offers, developing countries need to feel confident of their ability to manage the regulatory and policy implications of liberalized competitive conditions. Accordingly, they may wish to take a broad view of the policy spill-over in terms of domestic regulatory conduct and domestic policy dialogue that energy service liberalization will engender. This analysis is instrumental in assessing whether and to what extent the process of liberalization can take place with due respect for national policy objectives. Second, when reviewing an offer from a trading partner, negotiators may wish to focus on those measures that may hinder effective market access granted to them. Indeed, the value of bound commitments under GATS can be undermined if it is not underpinned by complementary commitments both within and outside the GATS negotiations framework.

Competition-related issues

48. The energy sector has some peculiarities that make competition-related issues particularly relevant and call for a careful scrutiny of anticompetitive practices and the development of appropriate antitrust legislation. It is worth recalling that, at the national level, a large number of developing countries still lack competition legislation. At the WTO level, there are no agreed rules on competition,[32] although the present system contains numerous competition-related provisions scattered through different agreements, such as GATS, specific services agreements (e.g. the GATS Agreement on basic telecommunications), the agreement on antidumping, safeguards, and so on. The Doha Ministerial Declaration mandates negotiations aimed at creating a multilateral framework on trade and competition after the Fifth WTO Ministerial Conference (September 2003), on the basis of decisions to be taken, by explicit consensus, on the modalities of negotiations. Meanwhile, work in the WTO Working Group on the Interaction between Trade and Competition Policy is focusing on the clarification of (i) core principles, including transparency, nondiscrimination and procedural fairness, and provisions on hard-core cartels; (ii) modalities for voluntary cooperation; and (iii) support for progressive reinforcement of competition institutions in developing countries through capacity-building.

49. The GATS includes binding rules on monopolies and exclusive service suppliers and the legal framework to develop more regulatory disciplines touching on important antitrust issues. In greater detail, restrictive business practices (RBPs) by incumbent operators are subject to Article VIII (rules on monopolies and exclusive services suppliers) and Article IX (consultation and exchange of information between Members on RBPs). Article VIII is especially relevant to gas and electricity transmission and distribution services, often regarded as natural monopolies. It would require Members to ensure that the incumbent natural monopolist in the transmission/distribution market does not act in a manner inconsistent with the most favoured nation (MFN) principle and with the Member's specific commitments in that market, and that the

[32] Countries have, however, agreed on a "UN Set of Multilaterally Agreed Equitable Principles and Rules for the Control of Restrictive Business Practices" (General Assembly Resolution 35/63 of 5 December 1980). The Principles are not binding.

incumbent monopoly does not abuse its position in other liberalized segments of the gas/electricity market, which are the object of specific commitments under the GATS. Other disciplines on RBPs can be developed under GATS Article XVIII, following the example of the Reference Paper on basic telecommunications.

50. In the gas and electricity sectors, the core of competition rules would deal with (i) the right of access to the infrastructures: gas pipelines, electricity grids, but also other "essential" infrastructure, including gas storage facilities and LNG terminals; (ii) unbundling industry segments through vertical separation of production, transmission and distribution and/or horizontal detachment; and (iii) consumer choice, by establishing eligibility thresholds for choice of suppliers among the different classes of customers (power utilities, industrial, commercial or residential users). These structural remedies are designed to reduce excessive market power in the noncompetitive segments of the gas and electricity industry, by curbing the incentives for self-dealing among incumbent operators controlling transmission and distribution networks.

51. Other key structural elements of competitive gas and electricity markets pertain to the ability of market operators to enter and build new infrastructure in a reasonable time frame; nondiscriminatory and fair access to timely information on prices, transmission capacity, congestion, scheduled volumes, and other data relevant to efficient and fair business transactions; development of reasonable technical standards; and establishment of an independent regulatory authority to guarantee fair and nondiscriminatory competition and dispute resolution among competing actors in the market.

52. Third-party access (TPA) to the infrastructure (transmission and distribution) network is the main tool for achieving competition:[33] the network operator has to make its network available to other enterprises under conditions no less favourable than those which the operator offers in similar cases within its own enterprise or to associated enterprises. As to the access regime, TPA to gas and electricity infrastructures can be regulated or negotiated. Under a negotiated TPA regime, the third party has to agree with the grid owner on the terms and conditions of access. *Ex post* control either by a sector-specific regulatory authority or by a cartel/antitrust authority ensures that the grid owner may not abuse the power arising from its control of the monopoly. Under a regulated TPA, third parties are enabled to use the grid according to regulated terms and conditions of access. This entails e*x ante* review of the terms and conditions by a competent regulatory authority. For both negotiated and regulated TPA, clear definition of the right of access, refusal and speedy dispute settlement procedures is important for ensuring an effective access regime.

53. Rules on priority of access may hinder nondiscriminatory and competitive TPA to the network. Access priority is often given to specific customers. In some instances, regulators tend to see traditional incumbents as the primary means through which public service obligations can be met. Besides, the incumbent gas/electricity companies may keep on reserving for themselves priority usage of their system. How transport capacity is released (e.g. according to “first come, first served” or pursuant to an auctioning system for capacity) and whether detailed rules for access refusal exist are issues in reviewing the fairness of priority-of-access rules.

[33] On TPA in the gas industry, see R. B. Achmin, “Negotiated Third Party Access in Germany: Electricity and Gas” in *Journal of Energy and Natural resources Law* 20(1) 2002: 27–39.

54. A final TPA-related issue is concerned with tariffs for access to the transportation/distribution network. Pricing of access to transport may be left to market forces (e.g. capacity auctioning). In noncompetitive segments, different approaches (regulated access pricing) may be needed to avoid abuse of monopoly power. Transparent and nondiscriminatory access tariffing is essential to effective TPA. Indeed, differences between tariffs may be explained, but tariff differentials should reflect the costs, otherwise they would be unduly discriminatory.

55. When designing TPA regimes, developing countries should try to accommodate competing policy objectives. On the one hand, countries may be committed to stimulating competition. In this respect, effective and efficient TPA is crucial to achieving the ultimate goals of cost efficiency and customer care. On the other hand, there is a need to encourage the efficient operation and development of the industry by promoting quality-of-service standards and infrastructure extension. A certain degree of in-house preference may be well designed to achieve this fundamental policy objective, mostly in young and nascent gas and electricity markets, as well as to pursue public service goals. Indeed, when a merchant company retains broad freedom to use its transport system for strategic and commercial purposes, there are greater incentives to undertake incremental investment projects. Besides, there may be greater incentives for efficient system management, upgrading and expansion, including maintaining high system quality standards. Developing countries may incline towards flexible TPA regimes, depending on how much commercial and investing entrepreneurship they wish to maintain in order to develop their gas and electricity transmission and distribution systems.

56. As was noted above, vertical integration poses fundamental difficulties for effective competition in the network-based industry. Accordingly, the full potential benefits of liberalization may not be achieved if measures are not taken to curb the incentives for self-dealing among integrated incumbents. Unbundling is the process of separating the natural gas and electricity chain into components (e.g. gas purchase/electricity generation, transmission, distribution, supply, gas storage): it stands as the essential precondition for nondiscriminatory treatment of access seekers and to ensure that vertically integrated companies do not discriminate in favour of their own supply business.

57. Various approaches can be taken with respect to unbundling. The strongest version consists of full ownership separation/divestiture, where merchandise activities (purchase and supply) are separated from transport.[34] "Weaker" forms of separation include operational separation,[35] functional separation,[36] and internal accounting separation.[37]

58. Since countries have widely differing institutional and legal systems, a single approach to unbundling appears impractical. It has been suggested that the most realistic solution in the GATS context may be to adopt the approach taken in the European Union’s gas and electricity

[34] Most advanced forms of divestiture entail increasing ownership fragmentation in transmission activities, generation, distribution and supply activities.
[35] Ownership of the transmission grids remains with the gas merchant, but its operation is the responsibility of a fully independent entity.
[36] It entails, beyond accounting unbundling, reliance on the same information as others when purchasing and selling gas, as well as separation of employees involved in transport and in gas purchases-sales.
[37] Within the same vertically integrated entity, separate accounts are established for commodity purchases and sales and transport/ancillary services; the entity charges itself the same price for transport/ancillary services as it does others.

directives, which allow countries several choices ranging from ownership separation to account and management separation.

59. As for TPA, countries may consider the need to strike a balance between competing policy objectives. The most appropriate form of unbundling should avoid the abuse of monopoly power that arises from natural (or artificial) monopoly in the gas/electricity industry, while preserving investment incentives.

60. Energy transit is an important factor for cross-border energy, especially for electricity, oil and gas trade and presents competition problems similar to those of TPA.[38] The 1921 (general) and 1923 (electricity-specific) Barcelona conventions on transit established the principle that transit should be facilitated, not obstructed. To avoid using transit as a stranglehold, only reasonable and cost-related fees should be charged.[39] But there was no obligation to build new facilities or even use state powers to facilitate the construction of new transmission lines. Article V of the GATT is largely based on the Barcelona Convention. It allows only reasonable, cost-related charges (no customs duties) and requires MFN treatment.

61. There are two additional areas in which competition policy is necessary if competitive electricity and gas markets are to be established: merger policy and subsidies. Mergers and acquisitions activity may aim at reaggregating functions, such as generation and distribution, that may have been disaggregated to create competition. Therefore, an active merger control policy is necessary to avoid abuses, without necessarily blocking all mergers. Subsidies have been commonly used in electricity markets and have included aid to other industries, such as coal; to specific generation technologies, such as nuclear and some renewables; and to some end user groups, especially energy-intensive industries. Subsidies may be particularly damaging to competition in international electricity markets since differences among national policies may provide an unfair competitive advantage to some electricity companies. While the basic concepts (e.g. market power) and remedies (e.g. divestitures and facilitation of entry) of competition policy remain the same, in developing competition policies the peculiarities of the electricity market have to be taken into account – for example, the fact that electricity markets may be different for different time periods, or the relatively long time span from initial planning to putting into operation of generation and transmission assets.[40]

62. In the negotiating proposals on energy services presented within the ongoing GATS negotiations, the European Community, Japan, Norway and the United States addressed the problem of anti-competitive practices in the energy sector. The United States and Norway recommended that the same approach adopted during the negotiations on basic telecommunications to deal with anticompetitive practices – a Reference Paper – be used in the energy sector. The Reference Paper on telecommunications includes a nonexhaustive list of anticompetitive practices: (i) engaging in anticompetitive cross-subsidization; (ii) using information obtained from competitors with anticompetitive results; and (iii) not making

[38] Energy transit is commonly understood as the process of energy originating in one country (exporter), transiting at least one second country (transit country) and then entering the destination country (importer).
[39] M. M. Roggenkamp, "Transit of Network Bound Energy: A New Phenomenon? Transit Examined from the Barcelona Transit Convention to the Energy Charter Treaty," 19 *World Competition* 2 (1995), 119–46.
[40] International Energy Agency, *Competition in Electricity Markets*, IEA/OECD, 2001: 121–22.

available to other services suppliers on a timely basis technical information about essential facilities and commercially relevant information necessary for them to provide services.

Transparency

63. Lack of regulatory transparency may hinder the development of nondiscriminatory energy markets. Opaque, discriminatory and arbitrary technical regulations and other regulatory requirements may hinder effective market access. Given the importance of licensing and procurement in the energy industry, the same holds true for rules on authorization and tendering procedures for the construction and operation of new extraction, generation and transport capacity. The specific issue of setting up independent regulatory authorities separate from the interests they regulate is addressed in a negotiating request.

64. In addition to regulatory transparency, there is a need for market transparency. In a competitive context, especially in the gas and electricity segments of the industry, all market participants need access to timely information on prices, transmission capacity, congestion, scheduled volumes, and other topics relevant to efficient and fair business transactions. Obstructions in the flow of market information can distort competition as effectively as physical constraints.

65. GATS-related transparency provisions set forth in Article III are largely procedural. WTO Members are required, *inter alia*, to publish all measures of general application and to establish national enquiry points mandated to respond to other Members' information requests. Further transparency disciplines may be adopted within the context of additional commitments or of a reference paper.

66. Additional commitments on regulatory transparency have been included in some requests on energy services. In addition, countries may be invited to take proactive measures to ensure the free flow of timely market information, including industry-wide technical standards. On the one hand, provisions to promote market transparency alongside regulatory transparency will have several benefits. Enhanced transparency will improve market efficiency by reducing transaction costs and market distortions. It can also reduce the incentives for corruption. Finally, it can generate positive spillovers in terms of good governance in other areas of domestic regulatory conduct. On the other hand, creating official and transparent channels for providing information to market actors can be extremely complex. In particular, developing countries must overcome what for many of them are acute informational deficits regarding the nature and importance of domestic regulatory impediments.

CONCLUSIONS

67. In conclusion, when assessing the requests on energy services received and when formulating their offers in this sector, WTO Members, especially developing countries, may wish to keep in mind the following considerations:

- The crucial relevance of energy services for sustainable human development
- The crucial relevance of energy services for economic growth and investment

- The impact of input prices, including energy, on the domestic industry and on overall country competitiveness
- The strategic nature of the energy sector
- The economic dependence of a number of developing countries on energy resources exports
- The link between liberalization of the energy services markets and achievement of public services goals
- The link between opening the energy services markets and enhancing domestic capacities in the energy services sector and related sectors
- The balance between ensuring competitive conditions and cost efficiency in the energy markets and attracting the needed investments
- The role of regulatory issues and restrictive business practices in the energy services sector
- The suitability of establishing an energy-specific regulatory body or giving an existing competition authority a specific competence in the energy sector
- The balance between the benefits of increasing transparency, including for reducing corruption, and the costs of implementing it.

Annex
NEGOTIATING CHECKLISTS[41]

Negotiating Checklist: GATS-Related Issues (measures affecting market access, including cross-border supply)

a) Measures governing ownership/commercial presence	*Legal framework* 1. Is investment in the energy sector/subsector subject to a separate statutory regime? How is it regulated at the central and local levels? *Private participation* *2. Is private participation in upstream hydrocarbon activities (e.g. exploration, production, gathering, initial transport and storage) possible? Is private participation allowed in midstream and downstream (i) refining activities; (ii) transmission and distribution; (iii) petroleum commercialization activities?* *3. Are certain hydrocarbon activities reserved (i) directly to the state/to 100% state-owned enterprises; or (ii) to locally incorporated companies in which the state holds a majority equity interest?* *4. What restrictions apply on private shareholding in upstream companies? What licensing regime is envisaged for private-sector involvement in the hydrocarbon industry?* 5. Is ownership of existing field, refining and transport facilities reserved to the state? Are companies engaged in upstream activities obliged to transfer facilities and equipments to the State on the expiration of the term of the contract? 6. Is private participation allowed in (i) power generation; (ii) wholesale marketing; (iii) transmission; (iv) distribution; (v) electricity supply? 7. Are certain electricity services reserved to state-owned companies? 8. What restrictions apply on private shareholding in electric utilities? 9. Is private ownership of conventional (thermal and hydroelectric) electricity generation facilities allowed? Is ownership of large hydroelectric system and of nuclear plants reserved to the central or local government? Can transmission and distribution networks be privately owned? *Foreign ownership* 10. Is foreign ownership allowed in the provision of services in (i) upstream hydrocarbon activities; (ii), transmission; (iii) distribution; (iv) wholesale marketing and retailing? 11. Is foreign participation possible in (i) power generation; (ii) wholesale electricity marketing; (iii) transmission, distribution and supply of electricity? 12. Are certain activities reserved for exclusive equity ownership by the nationals of the host State? 13. Are intended investment projects subject to discretionary screening (possible revision or cancellation if found to be prejudicial to security interests)? 14. When laws restrict foreign shareholdings in locally incorporated energy companies, what is the maximum foreign equity permitted or the minimum local shareholding?

[41] The checklists can be used in the following circumstances: developing a WTO Member's own offer; assessing a request from a Member's trading partner; assessing an offer from a Member's trading partner; formulating a request; or assessing whether or not to sponsor a position developed by another WTO Member. The questions included in the checklists are indicative, and sector- and/or country-specific fine-tuning may be required to enhance the operational value of the checklists.

	15. Are there restrictions on the takeover of host State energy firms by foreign investors? Can the host Government control the build-up of foreign shareholding in the host State energy companies through its competition policy? Does the competent authority retain the power to prevent the transfer of control to non-residents where they build up a share in the undertaking of more than a qualifying percentage? Can the qualifying percentage be lowered by decree? 16. Are there statutory restrictions of foreign ownership in privatized energy utilities? 17. What are the requirements for local participation in the management of a locally incorporated joint venture with the foreign investor? 18. Does the government keep a "golden share" in privatized companies that requires government concurrence in key business decisions? *Screening laws* 19. Are proposed foreign investments in the energy sector subject to screening by a specialized authority in the host State? 20. What authority is charged for the investment screening? 21. What criteria apply in evaluating applications for approval? 22. Are investors offered rights of judicial review against unfavourable decisions by the screening authorities? Are clear administrative guidelines issued from which investors can reasonably predict the response of host State authorities to an investment proposal? *Legal and joint venture requirements* 23. Are energy firms required to establish locally through a particular legal form of establishment? 24. Are foreign established companies subject to specific performance requirements, including (i) licensing requirements and technology transfer rules; (ii) remittance and foreign exchange restrictions limiting external financial transfers; (iii) local content and manufacturing requirements? 25. Is entry of the foreign energy firm conditional on the substantial involvement of local participants in the ownership and management of the investment project (joint venture requirement)? 26. Is local control (e.g 51% or more of the equity/contribution) required over the (equity/contractual) joint venture? Does the law provide for progressive increase in control over the venture? 27. Are there requirements regarding the composition of the board of directors? 28. What is the prescribed legal form of the joint undertaking (contract, partnership, limited liability company)?
b) Regulatory measures	1. Who carries out regulation of the power and gas sectors? Is the same regulatory authority responsible for issuing licenses for each regulated entity and for drafting rules on pricing? Is the regulatory authority independent from the government? How is its accountability ensured? 2. Are foreign service suppliers in the energy sector subject to screening by a specialized authority in the host State? What authority is charged with the investment screening? What criteria apply in evaluating applications for approval? 3. Are foreign persons offered rights of judicial review against unfavourable decisions by the screening authorities? Are clear administrative guidelines issued from which investors can reasonably predict the response of host State authorities to an investment proposal? 4. Who is responsible for setting prices in the gas and power sectors? Are regulated retail prices for gas and power set (i) by an independent regulatory

	body without concurrence of the Government; (ii) by the regulatory authority in concurrence with the Government; (iii) by the Government? 5. What pricing criteria (e.g. cost recovery plus depreciation plus return) apply? Shall the authority follow detailed standards or rules in setting prices? Is an external audit envisaged? Are prices set according to a detailed formula? 6. Are tariffs for access to (i) the gas transmission and distribution network; (ii) and the power grid regulated? By whom are tariffs for access set? According to which methodology are they set (e.g. distance-related vs. postalized system)? 7. Are tariffs for access to non-network scarce facilities (e.g. reservoirs in the gas sector) regulated? Are maximum prices set for flexibility services (e.g. balancing and storage in the gas sector) that are provided by the network operator? 8. Are private sector operators involved in setting prices and tariffs in the gas and power sectors? 9. What technical regulations, industry standards and certification systems apply to the provision of energy services? 10. Are there specifications concerning (i) crude oil (e.g. API gravity and Viscosity Index, and parameters for assay data on distillation and quality characteristics of a crude); (ii) refinery operations (specification parameters derived from standardizing organizations, such as BSI, ASTM, CEN); (iii) refinery activities (e.g. parameters for CO_2, SO_2, and unburned hydrocarbons and NO_X combined)? 11. What technical regulations and standards apply to: (i) natural gas (e.g. calorific value); (ii) odorization practices and load balancing; (iii) upstream pipeline network, transmission pipelines, distribution pipelines (e.g. pressures, specifications for materials, welding); (iv) LNG facilities and equipment (e.g. technical specifications for LNG purification and compression facilities, storage tanks and ocean going tankers, terminal facilities for loading and discharging LNG ships)? 12. Are there specifications on processes concerning (i) coal (e.g. calorific value); (ii) coal mining, site rehabilitation and waste management; (iii) combustion techniques (e.g. gasification and fluidized bed process)? 13. What service standards apply to (i) electric utilities; (ii) and power generation facilities and transmission distribution grids? 14. What technical regulations and standards (TRS) apply to (i) nuclear technologies; (ii) nuclear facilities; (iii) waste handling, transportation, and storage? 15. Are technical regulations, industry standards and certification systems transparent and non-discriminatory? 16. Do product specifications apply irrespective of the product's origin? 17. Do domestic providers face the same requirements with respect to technical regulations and standards? 18. Are technical specifications based on relevant international standards? 19. Are technical specifications worded in terms of performance or in terms of design or descriptive characteristics? 20. Do national enquiry points exist for the provision of information on standard-related issues? 21. Are conformity assessment, testing and certification procedures (i) non-discriminatory; (ii) transparent; (iv) based on relevant international standards? Are third-party certification and self-certification accepted? 22. What requirements apply to ensure security of supply? What universal service regulations apply?

c) Measures relating to licensing	1. What laws and regulations discipline licensing of energy activities? 2. What types of licenses are envisaged for (i) power generating; (ii) power transmission and distribution? What licensing regimes apply to (i) pipeline transportation; (ii) underground storage; (iii) gas wholesale and retail; (iv) gas distribution? 3. By whom are licenses issued and monitored? 4. What corporate restrictions apply to the licensed entity (e.g. principal corporate purpose, fixed minimum capital stock)? 5. Is there a requirement that the licensee be locally incorporated? 6. May the same entity hold different licenses (e.g. in transportation, storage and distribution)? 7. Are foreign suppliers subject to different or additional licensing conditions than domestic suppliers? 8. What financial and technical requirements apply? If the final licensing requires safety-related technical inspections, what authority carries out the inspections? 9. What is the license coverage (e.g. operational issues; asset management, including final disposal; establishment of quality control system; emergencies; environmental impact)? 10. Is the licensee held responsible for security of supply? 11. Does the license carry a built-in obligation to develop transportation facilities? 12. Are license open-ended or for a definite time? 13. Are licensed rights geographically restricted (e.g. assigned acreages, franchised areas)? Can geographic zones be modified? 14. Does the license confer exclusive rights (e.g. in distribution)? Do exclusive distribution licenses confer exclusive rights to market in the assigned zone? 15. What licensing procedures (e.g. application or bidding procedure) are applied? Under what circumstances are different procedures used? According to what technical and economic criteria (e.g. tariff for the service offered as the main criterion in the economic evaluation) are licenses allocated? 16. Are licenses issued to the energy companies transferable? 17. What provisions apply to modification, termination and revocation of licenses?
d) Measures governing the movement of natural persons	1. How are entry and work permits obtained? 2. Are equivalent professional qualifications obtained abroad recognized in the importing country? 3. Are there time limitations on the presence of foreign experts? 4. Is the entry of foreign experts subject to economic needs tests? 5. Are there residency or nationality requirements with respect to certain categories of personnel employed by locally established energy firms? 6. Are there restrictions on the entry of intra-corporate transferees?
e) Preferential liberalization measures	1. Is the importing country a signatory to the Energy Charter Treaty? Is the Member bound under regional arrangement relevant to the energy service sector (e.g. NAFTA, APEC)? Are there other preferential agreements at the bilateral or multilateral level? 2. Do foreign suppliers qualify under MRAs for technical specifications and professional requirements?
f) Universal service obligations	1. May the government impose on undertakings operating in the power and gas sector public service obligations relating to (i) security of supply; (ii) environmental protection and safety; (iii) quality of supply and pricing; (iv) other public interests?

	2. What measures (at which level) and what mechanisms are in place for assuring fulfilment of public service obligations? Are they objective and transparent? 3. Are foreign service suppliers subject to different or additional conditions than domestic suppliers in relation to public service obligations?

Negotiating Checklist: Non-GATS-Related Issues

a) Government procurement (based on WTO document S/WPGR/W/11)	1. How are government procurement activities in the energy sector administered? To what extent are procurement activities centralized? 2. Does the procurement regime distinguish between the procurement of energy-related goods and services? If so, what rules apply in cases of joint procurement involving both goods and services (e.g. joint engineering, procurement and construction arrangements)? 3. What procurement procedures are applied (e.g. tendering, auctioning)? Under what circumstances are different procedures used? 4. How are intended procurements publicized? Are invitations to tender published? If so, where, and in what languages? Do the extent and form of publicity differ according to tendering procedures applied and/or the value of the procurement? Is there a minimum set of information that is required to be published? Are electronic means used to advertise procurement opportunities? 5. Are there any charges for obtaining the full set of tender documents? 6. Are there registration, residence or other requirements for potential suppliers? 7. What is the nature of any conditions for participation required from suppliers (e.g. financial guarantees, commercial standing and technical qualifications)? Do the conditions of participation vary according to the nature of the tender process and/or the value of intended procurement? 8. Is procurement subject to (i) local content; (ii) technology transfer; (iii) local employment; (iv) investment/local presence in the importing country? 9. Are there lists of approved suppliers? If so, what are the procedures for checking the capability of firms applying for inclusion on tenderers' lists? Are lists of approved suppliers, if any, regularly reviewed/updated? 10. What criteria are taken into account in the award of tenders? Are criteria for award of contracts made available in advance to potential suppliers? 11. Is preference given to any particular enterprises or group of enterprises? 12. Do the procurement criteria differ according to sector or region of the economy? 13. What is the margin of choice or discretion allowed to the purchasing authority? What does the extent, if any, of discretion allowed depend on? 14. How are tenders received, registered and opened? 15. Are entities required to publish details of contracts awarded and/or notify unsuccessful tenderers? 16. Are entities required to publish, or provide to unsuccessful bidders, pertinent reasons why their bid was rejected? 17. What, if any, are the procedures available for parties, domestic and foreign, to lodge complaints against the award of a contract? 18. What laws, regulations, procedures or practices accord domestic services and/or suppliers treatment more favourable than that accorded to foreign services and/or suppliers, or accord services and/or suppliers of a Member more favourable treatment than those of another Member? Are foreign service suppliers restricted in the range of procurement activities in which they can participate in upstream exploration and production? Do procuring entities grant advantage to domestically owned or locally established companies? 19. Is the most favoured nation principle subject to any reservation and observation?
b) Goods-related standards issues	1. What technical regulations, industry standards and certification systems apply to energy products and production processes? 2. Are there product specifications concerning: (i) crude oil (e.g. API gravity and Viscosity Index, and parameters for assay data on distillation and quality characteristics of a crude); (ii) refinery operations (specification parameters

	derived from standardizing organizations (BSI, ASTM, CEN) and manufacturers' specifications for fuels and other products (e.g. maximum lead and sulfur content); (iii) refined products (e.g. parameters for CO_2, SO_2, and unburned hydrocarbons and NO_X combined)? 3. What technical regulations and standards apply to: (i) natural gas (e.g. wobbe index, methane number, soot index, dew point, calorific value); (ii) odorization practices and load balancing; (iii) upstream pipeline network, transmission pipelines, distribution pipelines (e.g. pressures, specifications for materials, welding); (iv) LNG facilities and equipment (e.g. parameters for LNG purification and compression facilities, storage tanks and ocean going tankers, terminal facilities for loading and discharging LNG ships)? 4. Are there specifications on products and processes concerning (i) coal (e.g. calorific value); (ii) coal mining, site rehabilitation and waste management; (iii) combustion techniques (e.g. gasification and fluidized bed process)? 5. What technical specifications and requirements apply to (i) electric facilities; (ii) providers in power generation, transmission, distributions and supply? 6. What technical regulations and standards apply to (i) nuclear technologies; (ii) nuclear facilities; (iii) waste handling, transportation, and storage? 7. What technical regulations, industry standards and certification systems apply to energy-service-related tools of the trade? 8. Are technical regulations, industry standards and certification systems transparent and nondiscriminatory? 9. Do product specifications apply irrespective of the product origin? 10. Do domestic providers face the same requirements in respect of equipment, as well as products and production processes? 11. Are technical regulations concerning product requirements and processes based on relevant international standards? 12. Are they worded in terms of performance, or are they phrased in terms of design or descriptive characteristics? 13. Do national enquiry points exist? 14. Are conformity assessment, testing and certification procedures (i) non-discriminatory; (ii) transparent; (iii) based on relevant international standards? Are third-party certification and self-certification accepted, or are government-issued certificates required?
c) Duty-free temporary entry for services-related tools of the trade	1. Are there restrictions on the temporary entry of service-related tools of the trade (e.g., for exploration services: (i) geology kits for petrography, stratigraphy, tectonics, micropaleontology palynology, sedimentology and organic geochemistry; (ii) geophysics apparatus for seismology survey processing interpretation and seismic stratigraphy; (iii) engineering equipment and software used in log analysis, pressure analysis, well testing, reservoir simulation and reserves determination)? 2. Do restrictions apply to the temporary intra-firm transfer of service-related equipment? 3. Do restrictions on services-related tools of the trade apply to contractual service suppliers?
d) Competition policy	How are rules for third-party access (TPA) to the network infrastructures defined? *Access regime* 1. What type of access regime is envisaged (negotiated TPA, regulated TPA, other)? 2. Is there an *ex post* control of the negotiated terms and conditions by a sector-specific regulatory authority or by a cartel/antitrust authority (nTPA)?

	3. Is there an e*x ante* review of the terms and conditions by a competent regulatory authority (rTPA)? 4. Are terms and conditions of access (i) transparent; (ii) nondiscriminatory as between third parties; (iii) no less favourable than those applying in-house? 5. Are procedures of negotiation clear, efficient and mandatory (nTPA)? Is there an obligation on the companies to publish indicative tariffs for transport/capacity (nTPA)? 6. Are there efficient dispute settlement mechanisms? *Priority of access* 7. How is transport capacity released ("first come, first served", auctioning system, other)? 8. Are specific customers (e.g. distribution companies that could not otherwise fulfil their public service obligations) entitled to priority of access? 9. Are incumbent operators allowed the priority use of their system? *Access refusal* 10. How are rules for access refusal defined? 11. Is there a clear definition of the right of access refusal (e.g. strict and clear definition of lack of capacity, or specification of the public service obligations in question)? *Tariff for access to the transportation network* 12. How is pricing of access to network infrastructures determined (e.g. left to market forces, as in the case of capacity auctioning; regulated)? 13. Which are the criteria for access tariffing? Are access tariffs (i) transparent; (ii) nondiscriminatory; (iii) cost-reflective, in terms of their service requirements (e.g. different types of service, different location of users/purchasers, differences among categories of users/purchasers)? 14. Are the same tariffs levied on the network operator's own business? 15. Are tariffs based on the internal cost structure of the incumbent operator? Is there an external audit of the companies' accounts? *Access to essential facilities and flexibility services (e.g. storage)* 16. Is the network operator responsible for flexibility services (e.g. storage and balancing)? Are tariffs transparent and nondiscriminatory? 17. Is TPA to essential network-related facilities (e.g. reservoirs) envisaged? How do internal laws and regulations deal with other instances of anticompetitive conduct? 18. Are network activities (i) separated from commercial activities; (ii) broken down in their distinct components? Are activities unbundled by means of internal accounting separation, functional separation, operational separation or ownership separation? 19. Are there restrictions on vertical integration of upstream and downstream activities (e.g. generation and retail supply)? 20. In the context of a dominant upstream incumbent (e.g. vertically integrated production and transportation), are there regulated ceilings for wholesale supply price and transportation rates? 21. How is competition encouraged in the downstream sector? Are final consumers free to choose their retail supplier? 22. Are there restrictions on horizontal mergers and takeovers involving energy companies? Are there restrictions on the move into different energy segments (e.g. oil companies moving in the electricity business)? 23. Are there restrictions on specific contractual patterns (e.g. restriction on the

	duration of supply contracts)? Are incumbents forced to release to new entrants some of the supply under long-term contracts? 24. Are there measures to deal with predatory pricing? Are there minimum requirements (floors) for retail electricity and gas prices?
e) Other relevant measures	1. What is the (i) royalty rate; (ii) income tax rate for hydrocarbon activities; (iii) surface tax on areas that are not being developed; (iv) fuel consumption tax to hydrocarbon by-products produced and consumed as fuels; (v) consumption tax on hydrocarbon by-products sold in the internal market?