Discussion Paper:
The Energy and Climate Change Dimensions of the European Neighbourhood Policy

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Further information

For further information on the work of the **WWF European Policy Office**, including its work on the European Neighbourhood Policy as a whole as well as EU Climate Policy, please visit: www.panda.org/epo.
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Editorial Notes:

- This paper is meant to serve as an introduction into the topic and basis for future discussion among the various political constituencies with their different angles and background.
- EU-Russian relations are only covered in this paper in relation to the ENP; a separate briefing paper on EU-Russian energy and climate policy relations will be published at a later stage.
- The opinions expressed in this study do not necessarily in all aspects represent those of WWF.

Table of Contents

1 AN INTRODUCTION TO THE EUROPEAN NEIGHBOURHOOD POLICY

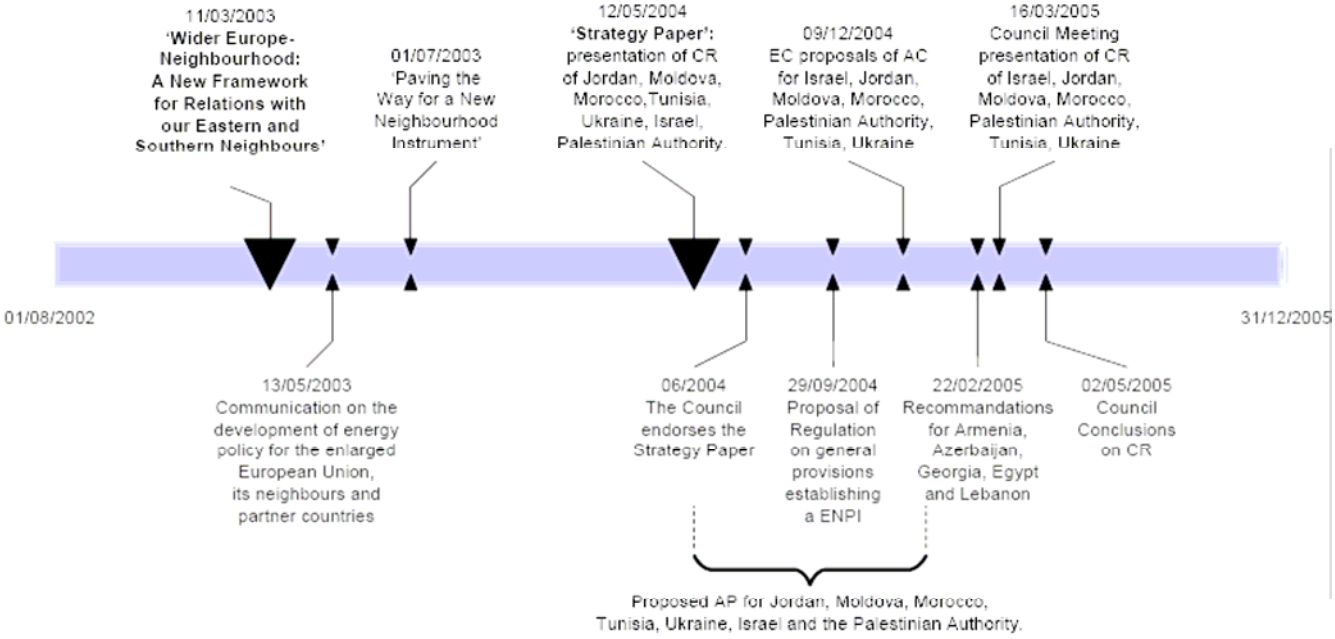
After years of accession talks, in 2004 ten countries joined the European Union. Countries who had been neighbours now became family, shifting Europe's external borders. There have long been programmes of cooperation with countries further afield, such as those along the Mediterranean and the Former Soviet Union. But with the accession process now limited to a handful of countries, the distinction between those countries likely to become part of the EU and those who probably will not comes into greater focus. In an attempt to **rationalize and refocus external relations** with seventeen of its neighbouring countries (see map), the European Commission created the European Neighbourhood Policy, or ENP[1].

Figure 1.1: Countries in the ENP, with observers (Belarus, Libya) and strategic partner (Russia)

The ENP is a **work in progress** – the groundwork is laid in the 'Wider Europe – Neighbourhood' Communication (COM (2003) 104), which has been followed by a series of documents and plans (see timeline below). Much of the content is left to country-by-country action plans. These, however, are laundry lists of activities that will require several years and various channels to complete. Perhaps the primary coherence in the ENP lies in two aspects: drawing together the political processes of various programmes and synthesizing them post-2006; and creating a new financial instrument to help pay for the actions identified – the European Partnership and Neighbourhood Instrument (ENPI).

[1] See Annex IV for social, economic, climate and energy data related to ENP countries

Figure 1.2: timeline of ENP documentation to date



The primary principle of the ENP is that the EU should enhance neighbourly relations with countries on its border, furthering '**social cohesion and economic dynamism**,' developing a 'zone of prosperity and a friendly neighbourhood – a ring of friends – with whom the EU enjoys close, peaceful and co-operative relations.'[2] Other principles, both explicit and implicit, are:

- Grappling with the geographic finalité of the EU (where does it end?), by establishing a realistic relationship alternative to EU membership with old and new neighbouring countries across the Mediterranean and to the East.
- The ENP is an element of the EU overall security policy[3].
- The ENP offers a framework in which to deal with migration issues.
- The ENP is an element of the EU's development policies, and in this context follows EU development policy rationales.
- The ENP is to promote trade in and with the neighbourhood region.
- The EU is in the position to promote freedom, democracy, human rights, sustainable development and other important values through its influence.
- Neighbouring countries have resources the EU needs to secure, such as oil and gas.
- Cross border problems, including environmental pollution, are in the EU's best interest to help address.

[2] European Commission, 'Wider Europe – Neighbourhood' Communication (COM (2003) 104)

[3] See, for example, 'A Secure Europe in a Better World – The European Security Strategy' 12 December 2003, http://ue.eu.int/cms3_fo/showPage.asp?id=266&lang=en&mode=g

Another key aspect of the ENP is that **not all countries are handled equally**. The EU/Russia strategic partnership, for example, goes beyond the scale of the ENP, and the latter is only one pillar of the EU-Russia relationship (and hence Russia's separate status as a 'strategic partner' in the ENP). Also, the Mediterranean neighbours have already had a formalized multi-sectoral relationship with the EU through the Barcelona Process for several years[4]. On the other hand, the point of cooperation with countries like Belarus, where there serious concerns about democracy and human rights, will be as much to induce political reform as anything else. As the **European Neighbourhood Policy Strategy Paper** (COM (2004) 373) notes, 'The ambition and the pace of development of the EU's relationship with each partner country will depend on its degree of commitment to common values, as well as its will and capacity to implement agreed priorities.'

European foreign policy is dominated by Member State actions, and hence the ENP, like the existing programmes it will synthesize, is operating on a level where the EU as an entity has influence. This means cross-border issues like enhancing the internal market, particularly with relation to opening access and harmonising standards and regulations; it is a planning, dialogue and financing platform operating within the constraints of the EU's mandate and power.

In spite of the shared, and still developing, foreign policy competencies of the EU, there are several attractive **inducements the EU can offer** neighbours to improve relations and leverage change:

- Extension of the internal market and regulatory structures
- Preferential trading relations and market opening
- Perspectives for lawful migration and travel (balancing concern over illegal migration with easier visa rules)
- Cooperating to prevent security threats (terrorism, organised crime, people smuggling, drugs, money laundering, etc.)
- Conflict prevention and crisis management
- Promoting human rights, cultural cooperation and mutual understanding (research education, culture programmes, city twinning, etc.)
- Integrating into transport, energy and telecommunications networks
- Investment promotion and protection
- Support for WTO membership
- Enhanced assistance (economic, legal, social cooperation)
- New sources of finance (both EU funds and funding from the EBRD, EIB, etc.)

The ENP first expands upon, then will replace, several existing financial programmes

The existing range of financial instruments addressing neighbouring countries varies in focus and breadth (see box). Even though they all aim to support co-operation on the EU's external borders,

Existing external financial instruments:

INTERREG Community Initiative: among the Structural Funds, supports cross border and transnational co-operation among MS and neighbouring countries
PHARE CBC (Cross-Border Countries): between MS and pre-accession candidate countries, but used also for cross border cooperation on candidate countries' external borders
TACIS CBC: supports cross-border cooperation in Russia, Belarus, Ukraine and Moldova
CARDS: targeted for Western Balkan countries
MEDA: supporting coordination between countries on the southern and eastern shore of the Mediterranean

[4] see http://europa.eu.int/comm/external_relations/euromed/

these instruments are governed by different regulations, thus making it difficult to implement genuine joint projects and leading to frequent criticism. Differences arise, in particular, in the mismatched level of funding, the programming process, and in project selection, implementation and monitoring.

In its Communication (COM (2003) 393) and subsequent proposed Regulation (COM (2004) 628) on a **European Neighbourhood and Partnership Instrument (ENPI)** the Commission hopes to harmonise all the existing procedures, in a single, simpler programme applicable to all cross-border projects. However, such an instrument raises a number of significant legal and budgetary questions (e.g. the present separation between external and internal funding) that can not be resolved immediately. In addition, current financial perspectives extend to the end of 2006, and some financial commitments have already been made[5]. Thus a two-phase approach was proposed, in order to introduce the new instrument gradually, without compromising the existing financial planning.

Phase 1 (from 2004 to 2006): coordination between the existing financing instruments will be improved. As a first step a **Neighbourhood Programme** will be introduced, covering the external border of the enlarged Union and proposing a broad range of actions, which include energy and environment. These programmes would permit a single application process, a single call for proposals and a joint selection process. The funding for these Neighbourhood Programmes would come from the allocations already earmarked for existing programmes. The existing programmes will continue existing side by side and will provide a useful basis for the Neighbourhood Programmes.

Phase 2 (from 2006 to 2013): **a new single instrument**, called the European Neighbourhood and Partnership Instrument (ENPI) will be implemented, replacing the previous ones. The new instrument covers three types of programmes:

(a) country or multi-country programmes: covering assistance to one partner country or a group of partner countries, in which Member States may participate;

(b) thematic programmes, addressing one or more specific challenges which are common to several partner countries and which may be relevant to Member States (replacing, e.g., LIFE Third Countries or Tempus programmes);

(c) cross-border cooperation programmes, financing 'joint programmes' bringing together regions of Members States and partner countries sharing a common border. This should bring a simplification in procedures and gains in efficiency. It will use an approach largely modelled on Structural Funds principles. The cross-border cooperation component of the ENPI will be co-financed by the European Regional Development Fund (ERDF) [6]

2 THE SIGNIFICANCE OF ENERGY AND CLIMATE IN NEIGHBOURING COUNTRIES, AND IN THEIR RELATIONS WITH THE EU

2.1 Europe will increasingly rely on energy supplies from, or passing through, neighbouring countries

It is no coincidence that cross-border energy issues feature in the ENP. Europe is a major importer of oil, gas and uranium, and the European Commission would like to see increased

[5] European Commission, 'Paving the Way for a New Neighbourhood Instrument' COM (2003) 393

[6] European Commission, 'Proposal for a Regulation of the European Parliament and of the Council laying down general provisions establishing a European Neighbourhood and Partnership Instrument' COM(2004) 628

trade in electricity. In 2000 the Commission published a Green Paper on Security of Energy Supply[7], where it found that its increasing reliance on external energy sources formed a **potential threat to energy and geopolitical security;** it noted that by 2030 90 percent of oil and 80 percent of gas consumption will be from imports. 30 percent of current gas comes from Algeria; 40 percent comes from Russia, rising to 60 percent by 2030.

Gas is of particular interest as consumption is rising quickly and it is seen as a more environmentally friendly alternative to coal and oil, as a transition fuel into a renewable and efficient energy economy. Europe receives gas from, and via, several ENP countries, observers and partners:

- Algeria (directly and via Morocco)
- Azerbaijan (via Georgia)
- Libya (directly)
- Russia (various channels, including via Belarus and Ukraine)

The share of gas in the EU energy supply, currently between 20 and 25 percent, will rise to nearly 35 percent in 2030 according to the IEA[8]. While around 40 percent of this amount is currently imported, by 2030 imports will account for about two-thirds of supply, tripling in volume. Over $20 billion per year will need to be invested in gas supply infrastructure to meet projected demand. Currently, investment outside of the EU to ensure supply – in neighbouring exporters, the Middle East and LNG suppliers in Africa and Latin America – are about a quarter of the total; however this will need to rise in coming years until it is over a third, or on the order of $8 billion per year. Thus there is a serious challenge in both meeting infrastructure requirements and in mobilising capital and executing developing projects in several parts of the globe, where, among other things, geopolitical stability through 2030 may not be guaranteed. Further, competition with other buyers, notably China and the USA, means that Europe cannot be complacent about maintaining these supplies.

Figure 2.1: Share of Gas in primary energy demand[9]

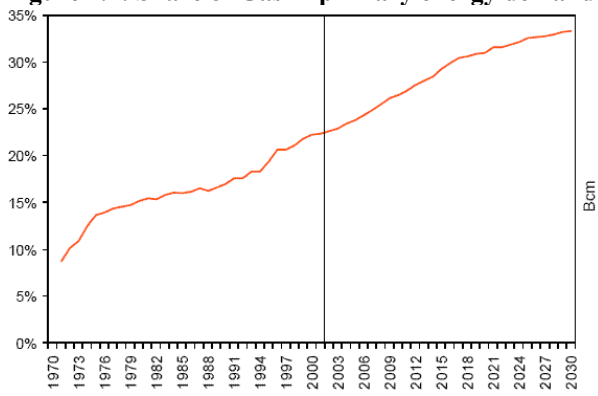
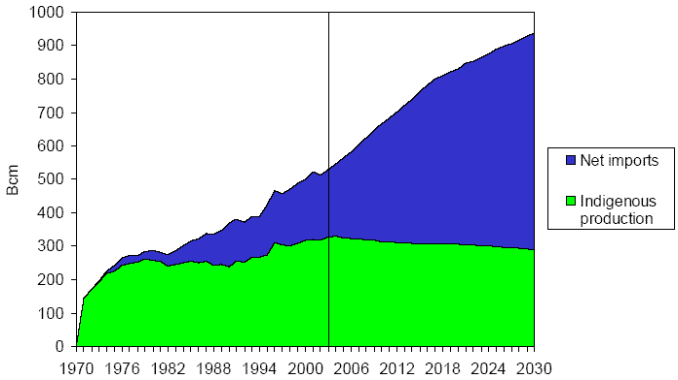


Figure 2.2: Natural gas supply imports[10]



[7] European Commission, 'Towards a European Strategy for the Security of Energy Supply,' COM (2000) 769

[8] International Energy Agency (IEA), 'World Energy Investment Outlook 2003; Outlook for European Gas Demand, Supply and Investment to 2030'

[9] IEA, ibid

[10] IEA, ibid

Expansion of the interconnected electricity market is considered beneficial

The EU has been trying to create an internal market in electricity[11] where the technical and economic conditions exist for the benefits of competition to emerge. The process is to be complete by 2008, allowing time for privatisation, decoupling of generation and transmission companies, establishment of rules guaranteeing a level playing field for competitors, and other important reforms.

Figure 2.3 indicates the planned **high-voltage interconnections in the region**, which should assist with the Commission's goal of each country in the EU having the capacity to transmit 10 percent of its consumption across its borders, while increasing the overall liquidity of the European electricity market. At the same time, interconnection, requiring technical harmonisation, should improve operating conditions such as reliability, availability and reduced losses in the connected neighbours.

Though it has not featured as such in these efforts, it is worth noting that the unmatched solar energy potential in North Africa has raised interest in using the region for solar generation, which would then largely be exported to Europe via interconnections[12]. Annex III describes renewable energy potential in ENP countries.

Figure 2.3: proposed electricity interconnections in the region (arrows)[13]

[11] see http://europa.eu.int/comm/energy/electricity/index_en.htm

[12] See, for example, 'Renewable energies for sustainable development: Impulses for *renewables 2004; P*olicy Paper 3' WBGU, Berlin, 2004. http://www.wbgu.de/wbgu_pp2004_engl.html#Heading15.

[13] Graphic produced for the Euro-Mediterranean ministerial meeting of 2003 by the SAVE programme

2.2 Integration of energy markets, dialogues on energy supply and external infrastructure projects are processes already well under way

As the EU has worked to complete integration of its internal market in electricity and gas, it has sought to extend the network for these commodities to neighbouring countries. Recognising its dependence on external supplies of oil and gas, the EU has also engaged supplier countries in **political dialogues meant to maintain steady supplies** of the precious commodities. The processes include:

- The Euro-Mediterranean Process is in no small part interested in maintaining access to Algeria's gas reserves – particularly as reliance on Russia increases. Algeria is in turn highly dependent on oil and gas exports (97 percent of exports, 30 percent of GDP, 65 percent of the state budget). Libya is an observer to the process, and an important oil and gas exporter itself. The effort includes formation of the Maghreb electricity market, for eventual connection with Europe.
- The EU-Russia energy dialogue, launched in 2000, is part of the broader bilateral cooperation partnership. It focuses on increasing energy market competition, infrastructures (including the electricity grid and pipelines), improving the investment environment, efficiency and climate change, and nuclear safety.
- The EU is well advanced in the process of creating a similar energy dialogue with Ukraine
- Recently the EU signed a memorandum of understanding on the Southeast European Energy Community to integrate their electricity network to the rest of Europe. Moldova and Ukraine were observers.
- The EU-Azerbaijan energy dialogue and the Baku-Tbilisi-Ceyhan pipeline: the latter, a private investment led by BP, is a major motivation for the former. The pipeline connects Azerbaijan with Turkey, via Georgia. It opens up a market for Caspian sea crude oil independent of Russia.
- Dialogue is not limited, of course, to the ENP region: there is an EU-OPEC dialogue, meant to keep up good relations with this important grouping, particularly in the Middle East. There is also the Baltic Sea Regional Energy Cooperation among countries in that region.

2.3 Climate change in the context of the ENP is primarily a subset of energy issues

Of the ENP countries, **only Belarus, Russia and Ukraine are in Annex I** of the Kyoto Protocol and thus have quantified emission reduction targets in the 2008-12 period (although Belarus has not yet ratified). **Four ENP countries have not yet ratified the Kyoto Protocol** – Belarus, Lebanon, Libya, and Syria. Specific circumstances are the primary reason for this - neighbouring countries with similar economies to the non-Parties have ratified, so being an oil exporter, or a country in transition is less of an issue than being in geopolitical difficulty. Part of the ENP's progress could be to see these countries towards ratification.

That so many of the neighbouring countries do not have Kyoto targets in the first commitment period, or that those who do have generous allocations exceeding current emissions (so-called 'hot air'), does not mean that climate change is not an issue for them. The reasons are several:

1. The possibility of taking on future commitments (according to the UNFCCC principle of 'common but differentiated responsibilities'), and wanting to be prepared for them
2. Opportunities for reduction projects that yield credit and needed improvements in the energy sector (the Clean Development Mechanism and Joint Implementation)
3. Synergies between good climate policy and good energy policy, particularly with respect to efficiency and energy security.
4. Concerns about the impacts of climate change, and the needed investment in adaptation and disaster readiness

Each of these is addressed in turn below:

2.3.1 The scope for future commitments is limited but could take novel forms, which correspond to improvements in energy use

With respect to future commitments it is too early to tell what kind of international regime will emerge for the post-2012 period, and what kinds of contributions or commitments might be considered for various types of countries. For current non-Annex I countries, the commitment to absolute emission reduction targets ('caps') is not expected for several years to come, while many of the developing countries show their willingness to contribute their 'fair share' of climate protection by other approaches. When attention is paid to non-Annex I countries' impact on world emissions, the focus tends to be on either those large countries with high total impact, like Brazil, China and India, or those countries with high GDPs that might rightly be moved from the 'developing' to the 'developed' column, like South Korea or Saudi Arabia.

It is noteworthy that three North African countries (Algeria, Tunisia and Libya) actually have **higher GDPs per person** than the average of those ENP countries in Annex I (Belarus, Russia and Ukraine). Furthermore, many of these countries are very inefficient in their conversion of energy. With the exception of Armenia and Moldova, all non-Annex I ENP countries have more carbon intense energy use than even Russia or Ukraine, which are themselves no models of efficiency. The carbon intensity of their electricity production is also, with the exception of Syria, Tunisia, Armenia and Georgia, more intense than that of Russia or Ukraine. Committing to **reducing carbon intensity**, whether as a quantified commitment or through agreeing relevant policies, is one of the options on the table for enhanced engagement among developing countries in a post-Kyoto regime.[14]

Other commitments to climate-friendly policy could gain more formal recognition through the UN negotiations – the concept of '**sustainable development policies and measures** (SD-PAMs)' for example[15], is one where developing countries earn international recognition for climate-friendly policies put in place for economic development reasons. An example would be biofuels in Brazil, which reduce import dependency, or vehicle fuel economy standards in China meant to reduce urban air pollution.

[14] See, for example, Climate Action Network's 'Viable Framework for Preventing Dangerous Climate Change' www.climnet.org/EUenergy/futureaction.htm

[15] See www.wri.org

The ENP could be a mechanism for aiding the process of setting and meeting commitments of these kinds in the neighbouring countries, which are in line both with national priorities and the international process.

2.3.2 The Clean Development Mechanism and Joint Implementation is little in evidence in relevant ENP countries

Non-Annex I countries in the ENP that have ratified the Kyoto Protocol are eligible to be host nations of the Clean Development Mechanism. To date **only nine CDM projects** are at some stage of development in ENP countries, out of a total of 456 worldwide[16]. Credits from these projects should yield 3,627 ktCO2, or 0.61 percent of the total in the CDM pipeline. These amounts are small, given that the population of CDM-relevant ENP countries is four percent of, and their emissions 4.5 percent of, the total for non-Annex I countries. Thus, compared to the average in the CDM, credits from ENP countries are **underrepresented by a factor of seven**.

Table 2.1: CDM projects in the pipeline in ENP countries

Title	Type	ktCO2/yr	2012 ktCO2	Host country	Credit buyer
Lusakert Biogas Plant (LBP)	Agriculture	67	404	Armenia	Denmark (EPA)
Nubarashen Landfill Gas Project	Landfill gas	97	553	Armenia	Japan
Hiriya Landfill Project	Landfill gas	100	790	Israel	UK
Moldova biomass heating project 1	Efficiency, households	18	84	Moldova	World Bank (CDCF)
Moldova biomass heating project 2	Efficiency, households	18	84	Moldova	World Bank (CDCF)
Moldova energy conservation and GHG emission reduction	Fossil fuel switch	11	80	Moldova	World Bank (CDCF)
Landfill Gas capture and flaring at Chisinau	Landfill gas	61	488	Moldova	Denmark (EPA)
Essaouira (60 MW) wind power project	Wind	156	936	Morocco	n.a.
Tétouan (10,2 MW) wind farm project for Lafarge cement plant	Wind	29	208	Morocco	France

One explanation is clearly the non-ratification of three relevant countries – Lebanon, Libya and Syria, which diminishes the potential number of countries for projects (whether projects would take place in these countries anyway, given political concerns, is another issue). However, where there are better prospects – countries with closer cooperation like Morocco, wealthy countries like Israel – Europe, despite its proximity, may not be making the most of the opportunities.

[16] All CDM data for the text and tables in this section is from Fenhann, Juergen, UNEP-Riso, 'CDM pipeline' www.cd4cdm.org.

Table 2.2: JI projects in the pipeline in ENP countries

Title	ktCO2/yr	2012 ktCO2	Host country	Credit buyer
KronoClimate Biomass	351	1755	Russia	Netherlands
Mednogorsk CHP	53	267	Russia	Netherlands
Kirishi TPP fuel switch	100	500	Russia	Netherlands
Amursk CHP-1	462	2310	Russia	Netherlands
Amursk CHP-1 b	273	1365	Russia	Denmark
Mednogorsk CHP	37	185	Russia	Denmark
OJSC 'Kirovogradoliya' Biomass	46	228	Ukraine	n.a.
14 cogeneration units	100	500	Ukraine	Netherlands
Co-Generation units	38	190	Ukraine	Netherlands
Methane flaring from Coal Mine Gas	53	263	Ukraine	Netherlands
Coal mine methane utilization, Donetsk	665	3325	Ukraine	Netherlands
Electricity from Stripped Casing-head Gas in Boryslav	68	338	Ukraine	Austria
District Heating System Rehabilitation, Chernigiv	64	318	Ukraine	Netherlands
Rehabilitation of the District Heating System of Crimea	157	786	Ukraine	n.a.
UkrHydroEnergo (UHE) hydropower rehabilitation project	281	1403	Ukraine	Netherlands
Landfill Gas Utilisation in Kiev Landfill No. 1 and No. 5	221	1105	Ukraine	Denmark
Landfill Gas Utilisation in Donetsk Oblast	56	280	Ukraine	Denmark
Landfill Gas Utilisation in Kharkiv Oblast	47	235	Ukraine	Denmark
Methane capture at the Odessa landfill	38	190	Ukraine	Netherlands

The other crediting mechanism, Joint Implementation, is open to countries with quantified targets. Russia and Ukraine represent about **a third of the credit in the pipeline of current JI** projects. Considering that newly acceded countries in the EU will cease to be eligible for JI, and considering the massive potential for reduction in the Russian and Ukrainian energy sectors, these three MT/year worth of projects, half of which are primarily means of disposing of fugitive emissions, are not going to yield the energy system modernisation so highly prized by the ENP, not to mention coming nowhere near exhausting the high potential for emissions reductions.

An assessment of Russia's involvement in the prototype for JI, called Activities Implemented Jointly (AIJ), indicated that no credits were ever derived from the nine projects that ended up moving forward. Many others had already fallen by the wayside, as institutional, financing and implementation problems formed a serious barrier to success[17]. These barriers have had lasting influence, keeping the largest potential JI country from playing nearly as large a role as it could.

[17] Korppoo, Anna 'Barriers to JI in Russia: Experiences of AIJ' www.climate-strategies.org

2.3.3 Climate benefits can be expected from good energy policy

As noted above, countries neighbouring the EU are generally carbon intensive in their use of energy. Syria, for example, has the world's most carbon intensive energy use[18].

In other words there is scope for improvement in energy production and use with relevance to greenhouse gas emissions. Bringing down the carbon intensity of energy production has a variety of benefits beside reducing emissions, including freeing up fuels for other uses (including export), reducing demands on fuel supply infrastructure, and reducing the use of foreign currency for energy imports among net importers.

Renewable energy would also appear to be a natural for development in many ENP countries, which feature very favourable climatic and agricultural conditions. North Africa, for example, has unmatchable solar resources, and very good wind availability. Eastern Europe is highly agrarian and offers a great deal of potential for biofuels. See Annex III for a detailed assessment of the potential, objectives and ongoing projects in ENP countries.

There are potentially some explicit links between climate and energy policy through concepts like that of the '**green investment scheme**,' which would convert purchases of the 'excess' Kyoto credit available in Russia and Ukraine (known as 'hot air') into funding for clean energy projects[19]. This concept was designed as a way of both making such purchases acceptable and creating new funding sources for energy rather than seeing the money disappear in the Treasury. As Europe's emissions reduction commitments begin to look more and more challenging to meet through domestic cuts and CDM and JI, the prospect of 'hot air' purchase might become more likely. Doing it in a way that enhances clean energy development would be beneficial.

2.3.4 ENP countries will have to adapt to climate change and prepare for disasters

While the focus of climate change policy is generally on reducing emissions from energy conversion ('mitigation'), the opposite side of the coin – '**adaptation**' to climate change, and preparation for the natural disasters it may cause or exacerbate, is extremely important. This is so far little considered in Europe, which has been leading the international push for targets under the Kyoto Protocol and has not wanted to seem 'resigned' to climate change and 'merely' wishing to adapt. However, it is now clear that mitigation vs. adaptation is a false dichotomy: both are necessary, and this is no more true than in poorer countries with less developed infrastructure, in vulnerable areas, and with higher reliance on agriculture for income – these characterise the majority of ENP countries.

The Intergovernmental Panel on Climate Change (IPCC) has identified several **potential climate change impacts** in ENP countries[20]:

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[18] See Annex IV for climate and energy data of ENP countries

[19] See http://www.climate-strategies.org

[20] IPCC Third Assessment Report, Working Group Two, Table SPM2, www.grida.no/climate/ipcc_tar/wg2/017.htm

- In North Africa, rivers leading to the Mediterranean could be affected - average runoff and water availability would decrease (medium confidence)
- Desertification would be exacerbated by reductions in average annual rainfall in North Africa (medium confidence)
- Coastal settlements in, for example, Egypt, would be adversely impacted by sea-level rise through inundation and coastal erosion (high confidence)
- Productivity will decrease in southern and eastern Europe, hitting crops like wheat and sugar beets (medium confidence)

This is consistent with assessments of the Maghreb region[21], which show that temperatures could rise by between 2 and 4 degrees Celsius this century. Rainfall may drop between five and twenty percent by 2020. The effects could include increased loss of moisture from plants, decreased soil moisture, and reduced surface and ground water. Three sectors in the region are particularly vulnerable: agriculture (given the sector is primarily rain-fed), water resources (availability is already below 1000 m^2/capita), and the coastal sector (which is already degraded due population, industry and tourism pressures).

Interestingly, in assessments like these Africa gets more attention than 'Europe' because the former is particularly at risk and the latter is viewed as wealthy – but it tends to leave poorer economies in transition somewhat out of the equation. Studies do show that observations in the Caucasus are consistent with climate change predictions. Data for Georgia, for example, show warming of up to 0.5^0C in Eastern Georgia and cooling up to 0.3^0C in Western Georgia, especially in winter, which matches well with IPCC-reported studies from 1995 that show warming in the Central Asian and Caspian Sea regions and cooling over the Black Sea region. Precipitation levels are also changing: an increase of 15% in plains regions and a decrease of up to 20% in the mountainous areas of the Greater Caucasus, especially the eastern slopes.[22]

ENP countries will need adaptation assistance that includes:

- Analysis on vulnerability and adaptation
- More manpower, materials and planning to deliver needed disaster relief.
- Better building quality to withstand storm damage
- Seawalls and levees along areas prone to flooding
- Restrictions on building in flood plains, and other forward-thinking planning policy (including 'climate proofing')
- More flexibility in crops grown to reduce reliance on crops that may be damaged by shifts in rainfall (e.g. Mediterranean crops like olives currently facing serious water stress)
- Improved water supply infrastructure to deal with reduced water availability
- Water conservation measures to reduce waste

Adaptation to climate change is not mentioned in official ENP documentation.

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21 UNDP/GEF Regional Coordination, 'Vulnerability of the Maghreb Region to Climate Change, and Needs for Adaptation (Algeria, Morocco, Tunisia)', October 2002 *and* Agoumi, Ali 'Vulnerability of North African Countries to Climatic Changes Adaptation and Implementation Strategies for Climate Change' International Institute for Sustainable Development & Climate Change Knowledge Network, 2003.

22 GRID-Tblisi, 'Caucasus environment outlook 2002' http://www.grid.unep.ch/product/publication/CEO-for-Internet/CEO/index.htm

Objectives of climate change planning in the Maghreb region (UNDP/GEF 2003):

- A regionally integrated, adaptation network, capable of continuing policy development, information exchange, vulnerability monitoring, and project identification.
- Strengthened capacity in each country to respond to the technical, policy, planning and implementation challenges related to climate change adaptation.
- A collaborative consultation and planning framework in each of the Maghreb countries, for development of first National Adaptation Plans.
- A portfolio of climate change adaptation projects, supported by a set of small scale demonstration projects, suitable under evolving provisions of the UNFCCC.
- Clarification of specific needs for adaptation technology transfer.
- Scoping of regional assets for adapting to climate change (e.g., policies and ongoing projects).
- Deepened public awareness of the risks of climate change and of the opportunities of carefully considered options.

3 HOW ENERGY AND CLIMATE CHANGE ARE HANDLED IN THE ENP, AND IN THE COMMISSION'S GENERAL POLICY APPROACH

3.1 Energy and climate in the ENP process focus on markets and modernisation

The most specific document relating to energy and climate change in the ENP is the Communication '**On the Development of Energy Policy for the Enlarged European Union, its Neighbours and Partner Countries'** (COM(2003)262). The Commission contends that this document is now essentially **superseded by the ENP Strategy and the general principles set out by Commissioner Piebalgs** (discussed below) and no longer function as guidance[23]. Nevertheless, its main points are consistent with other ENP documents, and the Communication, which also still can be found on the Commission's ENP website[24], will be the basis for comparison with any new guidance.

The Communication's objectives are to:

- Enhance security of energy supply
- Strengthen the internal Energy market
- Support energy system modernization in partner countries
- Facilitate new energy infrastructure projects

Developing the internal market has been a major priority for the EU for the last decade – expansion to neighbouring countries is presumed to yield the same benefits as predicted for the EU: increased competition, reduced prices, improved environmental protection and enhanced security of supply. Thus the internal market as such is supposed to yield almost the entire range of benefits sought through this energy policy – whether that is to be expected is discussed at more length in section 4, below.

The Communication does cover 'environment and energy' briefly. It notes that there is high potential for energy efficiency, and that combating climate change and other energy-related

[23] Personal communication to WWF by various Commission representatives.

[24] http://europa.eu.int/comm/world/enp/document_en.htm

environmental problems leads to a high priority on modernisation, new energy investment, and renewables, combined with better metering, transport measures and energy pricing that incentivise efficiency.

Further, energy and environment are mentioned, as of the time of drafting in 2003, in the context of specific ongoing programmes and dialogues:

- The Euro-Mediterranean Energy Forum had as one of its three main objectives in the 1998-2002 period 'protection of the environment, by securing safe and clean production, transport and use of energy, and by encouraging energy efficiency and renewables.'
- The EU-Russia Energy Dialogue concluded agreements to work on pilot energy efficiency programmes in the regions of Astrakhan, Archangelsk and Kaliningrad, and for technical assistance projects under TACIS. There is a range of other projects and activities under development through the energy efficiency theme of the Dialogue, and through the EU-Russia Technology Centre.
- With Russia's energy ministry projecting a 75 percent increase in coal production by 2020, the EU hopes to further use of cleaner coal combustion technologies through funding under the CARNOT programme

The strategy notes 'environmental concerns within Russia will continue to form an axis of debate and the Commission will continue to press for progress in this area.'

At the time of the strategy's drafting Russia had not yet ratified the Protocol, so the dialogue formed one important means of the EU negotiations with Russia on this issue, and for Russia to explain its reservations. It was widely surmised that Russia extracted a promise from the EU for support of its bid to join the WTO in exchange for ratification – while some might view this as a crossing of policy boundaries that doesn't reflect the importance of climate and trade each in their own right, the strategy of cross-leveraging progress in various areas is central to the ENP, which explicitly mentions WTO accession as a point of discussion with neighbours.

The Communication stresses the **efficiency benefits of modernisation**, including new infrastructure for pipelines and power generation which, not coincidentally, might offer more, and more secure, energy exports to Europe. It notes that 'Investments into energy saving more broadly would free up resources that could be exported in the interest of both our neighbouring countries and the EU.' It calls for an increase in priority for efficiency and energy saving in the EU Russia Energy Dialogue and the Euro-Mediterranean Partnership.

Climate change is put in the context of this focus on modernisation and competition: goals should include supporting renewable energy in the integrated electricity market through 'ensuring the fair access of renewables to the grid as well as appropriate incentives for their development.'

As for the means for supporting development of modern infrastructure concurrently with reducing greenhouse gas emissions, the Communication points to Joint Implementation and the Clean Development Mechanism, and to the '**coalition of the willing**' (JREC) resulting from the Johannesburg Summit. However, as we have noted above, **JI and CDM have but minor influence** in the region. Only Morocco (which is co-chair of JREC) and Israel are

members of the Johannesburg Renewable Energy Coalition; the EU's **progress on JREC so far is limited** to a proposal for 'patient' capital and a database of policies and measures[25].

The **ENP Strategy paper (COM (2004) 373)** is a more recent document, and as one focused on the overall ENP, it may better reflect Commission priorities than the Communication. Nevertheless, there is limited attention to energy and climate change. The Energy section of the Strategy clearly puts the EU's energy security up front: 'Neighbouring countries play a vital role in the security of the EU's energy supply.' But it also notes that market access and convergence of standards and regulations 'will include policies to promote increased energy efficiency and energy savings as well as the use of renewable energy and cooperation in energy technologies, such as clean coal.'

The Strategy addresses specific **energy-related regional objectives**:

*The EU Eastern borders***:** 'Joint infrastructure and security projects…in the sectors of energy and transport.' In the area of environment, nuclear safety and natural resources, it is noted that as environmental problems are 'trans-boundary by their nature, many…can best be addressed at a regional level. Water and air pollution, the management of spent nuclear fuel, the gradual harmonisation of environmental standards and legislation.'

Mediterranean: 'assistance…in the planning of networks in order to facilitate trade and access to the EU market. Possibilities include new gas networks…as well as electricity interconnections'

The ENP Strategy stresses the economic development benefits of access to the EU internal market, and tends to **leave social issues primarily to non-ENP efforts:** the EU's role in reducing poverty, creating employment, improving social dialogue and other things will be limited to 'encourag[ing] partner governments' efforts.' Energy clearly has a social dimension, particularly in poorer countries where access to modern energy, and the means to pay for it, is limited. Given the focus on market aspects of energy and economics, and the lack of focus on social development, he ENP may be overlooking issues such as rural grid extension, low-cost energy provision and appropriate energy technologies.

3.2 Energy efficiency is the EU's current top energy policy priority

The core objectives of the EU's energy policy are competitiveness, sustainable development and security – these are long-standing principles frequently invoked as underlying development of the internal energy market. Energy Commissioner Andris Piebalgs further clarified his approach to policy in the context of these objectives, by identifying the framework conditions in which the EU is operating, and by outlining six priorities for the new Commission[26].

Piebalgs views Europe as operating in an international context that features:

- The likelihood of continued higher oil and gas prices
- The EU's continued commitment to Kyoto targets, and to making difficult choices in terms of the energy mix, security of supply and the energy sector's competitiveness

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25 JREC information homepage: http://forum.europa.eu.int/Public/irc/env/ctf/home

26 Andris Piebalgs, speech the plenary of the conference 'Towards Zero Emission Power Plants European CO_2 Capture and Storage Conference,' Brussels, 13 April 2005, and an overview on the site of Euractiv: www.euractiv.be

- Climate change challenges posed by the expected continued explosive growth of China and India, as well as their competition for energy supplies
- An expected rise in the EU's dependence on external energy supply (90 percent for oil and 80 percent for gas by 2030 as projected in the Green paper on security of supply)

In this context, he identifies the **six energy policy priorities for the current Commission**:

Energy efficiency is the top priority for 2005. Through a major new Energy Efficiency Initiative the Commission hopes to set a target of saving the equivalent of 70 million tonnes of oil per annum by 2010, which would save 15 billion euros per year, reduce CO_2 emissions, cut energy dependency by 4 percent, while creating new jobs.

The internal market in gas and electricity has been a major long-term high-priority project for the Commission; the objective is to continue to open up markets to create a real Community-wide and truly competitive market. A progress report with possible future action points will be published at the end of the year.

Renewable energy: the objective is to keep growth high; the Commission will publish a Communication evaluating different support schemes around Europe and discussing their potential harmonization.

Nuclear safety and security: the future of nuclear in Europe is linked to four aspects - security of nuclear materials, radiological protection, nuclear safety and the reliable disposal of nuclear waste. Nuclear safety is further mentioned in relation to neighbouring countries.

EU external energy policy relations will be stepped up on several fronts. There will be continuation of the EU-Russia energy dialogue (with increasing emphasis on efficiency) but also strengthening of relations with producer regions, and with consumer and transit countries. Integration of South East Europe into the internal market and cooperation under Euromed with North Africa are further examples.

Better linkage of energy, environment and research policy intends to create economic gain from tackling environmental problems through innovation. The R&D focus will be on CO_2 capture and storage (CCS), 'clean' coal, hydrogen and fuel cells and renewables.

4 THE ENP APPROACH IS NOT FULLY CONSISTENT WITH EU POLICY AND RELIES ON AN INTERNAL ENERGY MARKET THAT IS NOT YET PROVEN

Commissioner Piebalgs' six priorities for European energy policy encompass the concept of external relations and dialogue, of which the ENP is an important part. There is also a point on the internal market for gas and electricity, which is very prominent in the energy discussion in the ENP. But two of the six points cover renewable energy and energy efficiency – the latter being very explicitly the top priority: these are not subsets of the internal market, but stand on their own. This is the primary difference between the approach taken by the ENP and Piebalgs' priorities. The ENP approach to energy is explicitly about energy security, and mostly about **traditional notions of physical supply security -** pipelines and infrastructure – the perfect example being maintaining access to Algerian gas and Azerbaijani oil, as well as the all important connections to Russia for various forms of energy.

Energy efficiency and renewable energy do not feature prominently in the ENP – they are to be financed largely by CDM and JI, and there should be supportive policies – but as noted above there is little evidence that these will have much impact. Only in the context of the EU-Russia dialogue has energy efficiency been given any prominence, with the focus being on the way this will free up more gas for export. Climate change was clearly an important aspect of the Russia dialogue over the last two years, but **now that ratification has been secured there does not seem to be any clear road ahead for the issue**, both in terms of how to leverage its relevance to create change in Russia's energy system, and in terms of future development of the UNFCCC and the Kyoto Protocol beyond 2012.

It may well be asked whether 'promotional policies' for Renewable Energy as mentioned in the ENP Strategy are themselves sufficient to expand renewable energy and efficiency, without sufficient financing and technical assistance. The Commission's own recent assessment (COM (2004) 336) of Member States' **progress towards their renewable energy targets** under the RES-E Directive (2001/77/EC) indicates that many may well fall short. If this is the prospect within the EU, then **simply stating that the ENP will support good policies would seem to be a weak approach to adopt**.

The ENP Strategy notes that country Action Plans have two priorities: actions that *reinforce shared values and objectives* in foreign and security policy; and *bringing partner countries closer to the EU* in a number of priority fields. Those fields, which would include climate change and energy, are thus assumed to be dealt with through the approximation of European standards and approaches. To some degree the optimism is clearly warranted – the technical harmonisation needed to link electricity systems is likely to bring some benefits, for example. However, it is unclear if anything like adequate financing for significant renewable energy and efficiency gains will be mobilised. Further, 'softer' **social and environmental outcomes are little discussed** in the ENP context, and where they are mentioned, they are clearly lower priority. Such outcomes include improving **access to energy** for the region's poor, and addressing the range of **climate change preparedness** needs, particularly in regard to adaptation.

The internal energy market is not a magic bullet

In the energy field, **faith in the inherent superiority of markets** and their power to deliver a range of benefits has motivated the Commission not only to push for completion of the EU internal market, but to expand this market to neighbouring countries. This approach features in the ENP. The benefits are to be economic, social, environmental and, in no small measure, technical. Physical interconnection is an important facilitator for competition – as with any product in the market, without choice, there is no means to compete. At the same time, the need for harmonisation of not just technical, but managerial, accounting, customer service and other standards across systems should bring benefits to neighbouring systems.

The only problem with this picture is that **the benefits of competition are as yet far from evident within the EU itself**, and hence difficult to assume for neighbouring countries in the ENP**.** Discontent with liberalisation among many market participations led the Commission to launch an investigation of the process that will be released in the beginning of December. A draft Communication and accompanying report[27] on the issue note that:

[27] 'Report on progress in creating the internal gas and electricity market' an as-yet-unnumbered Communication available at http://europa.eu.int/comm/energy/electricity/report_2005/index_en.htm.

- By and large **customers have not switched suppliers** very much; lack of switching can indicate that there is 'likely to be a problem in the functioning of the market.' This is particularly true for smaller users – only four of 26 countries (including Norway) had switching rates above 20 percent for electricity, and only three above 5 percent for gas.
- Electricity prices fell between 1997 and 2000, but have risen strongly since 2000 for consumers larger than small commercial and households. Gas prices have risen far above 1997 levels, though clearly this is linked to rise in oil prices, to which gas prices are pegged. More problematic, the price paid for electricity in the most expensive Member States is almost twice that of the cheaper ones, meaning that **one can hardly speak of having a true Europe-wide market**.
- A number of Member States still have **high market concentration** among few players, stifling competition. Only the Nordic region and five others are 'moderately concentrated' in electricity, and only the UK is at that level for gas – all the others are more highly concentrated.
- Cross border and inter-operator flows of electricity and gas are insufficient and there are limited prospects for improvement. Arrangements to allocate capacity in cross border capacity were until recently ad-hoc and discriminatory. This might improve for electricity, but for gas 'access to the network is aggravated or not possible due to capacity allocation mechanisms that **may not comply with the principles of no-discrimination and transparency**' as well as contractual issues.
- Legal unbundling of transmission and distribution operators is 'far from what is required by the Directives…This lack of separation is often clear in the apparent behaviour of some Transmission Service Operators …there are **suspicions that incumbent suppliers may still enjoy preferential treatment**. Even more serious shortcomings have been reported regarding…distribution.'
- Although good regulation is central to a successful market, '**some regulators lack resources and competences**…may not have appropriate access to both technical and financial information [and] may also need new powers.'

With respect to relations with ENP countries the Communication notes that gas imports are very important and new capacity is coming online. However, ' the impact of new…sources on the position of established players must be carefully assessed to **avoid any reinforcement of existing dominant positions**.'

In terms of environmental outcomes the report notes Member States have been able to expand renewable energy, efficiency and CO_2 reduction 'in the context of a competitive market,' and states that market opening can 'significantly benefit the take-up of renewables.' However, it is telling that this statement is made as one of theory rather than empirical findings – a recent evaluation of renewable energy support schemes in Europe[28] finds that feed-in tariffs and premiums, which are **government-imposed obligations**, and not simply consumer choice of green products, **are the most effective form of support** - a conclusion likely to be reaffirmed in an upcoming Commission Communication on the issue.

[28] Centre for European Policy Studies (CEPS) 'Market Stimulation of Renewable Electricity in the EU: What degree of harmonisation of support mechanisms is required?' October 2005.

In fact, the internal market assessment primarily warns about the *negative* consequences of renewable energy for the proper functioning of the system: 'imbalances in the location of…wind energy, which has led to grid management difficulties. This remains a key challenge in the context of a European market.'

5 CONCLUSIONS ABOUT ENERGY AND CLIMATE CHANGE IN THE ENP

The EU lacks an energy policy as such – there is no energy chapter of the current Treaty, and responsibility for energy is divided into different Directorates and programmes. Which is the predominant EU energy policy? Commissioner Piebalgs' priorities, the Green Paper on Security of Supply, the commitment to limiting climate change to 2ºC, the new energy efficiency green paper, the ENP? Further, Member States defend their own interests when it comes to energy, and will back projects such as pipelines or interconnections as they see fit, whether it fits into a broader strategy or not.

The EU must come to some kind of strategic overview; while this emerges, it is incumbent on each policy to take action to be **consistent with stated priorities**. Otherwise the EU not only risks creating inconsistency among its own programmes, but could well find itself out-manoeuvred by competitors like the US and China. This is true not just for securing fossil fuel supplies, but also for climate policy and clean energy – given the often different stances the EU takes on these issues compared to other countries, its energy and climate policies need to reinforce each other across the board to be both effective on the ground and convincing politically.

Currently the focus of the ENP is on securing fossil fuel supplies. Secure supplies will be needed, but Europe also has the ability to free itself of the dependency; the effort placed on securing imported supplies could simply **reinforce a dependency on fossil fuels**, which a supply security approach more consistently based on renewables and efficiency would not. Europe has a commitment to seeing climate change limited to below 2ºC global warming. Future CO_2 cuts will have to be on the order of 50 percent or more, meaning that fossil fuel supply investments may reach a point at which they are stranded or locked-in, being incompatible with targeted and necessary emissions reductions.

The ENP represents a significant opportunity to place energy and climate policy in the context of a range of issues where important interrelationships (such as between political stability and energy investment) are made clear, and where there is the potential for broader political buy-in to energy reforms. Climate change and renewable energy advocates often talk of the need to 'mainstream' the issues, and to incorporate them into other processes, rather than remaining a special interest. The ENP is just such a process. This is why the progress on energy and climate change in the ENP to date is disappointing – **it represents a lost opportunity**. An important first step forward would be to issue a revised Communication on energy policy. The 2003 Communication is the only ENP document directly addressing energy, but is said by the Commission no longer to act as guidance. A revised Communication should specify what the current thinking is, and how the ENP can fit into and enhance the EU's broader climate and energy priorities. It should also take into account the developments in world energy markets, such as higher energy prices, and climate policy, such as entry into force of the Kyoto Protocol, since the publication of the 2003 ENP Energy Communication.

The ENP is already addressing a range of important issues…

Several specifics of the ENP bear mentioning. To begin with of course, the ENP's energy and climate aspects do address several important and laudable principles:

- Realistically, the EU must **guarantee, at least until a transition to other energy sources has been achieved, the security of fossil fuel supply**, even while renewable energy and efficiency are enhanced. However, the envisaged supply of fossil fuels should be in proper relation to the EU's Kyoto commitments and possible 2020/2050 reduction targets, in the context of its commitment to keeping global warming below 2°C. E.g., efforts to maintain a supply of oil and gas that will lead to excess emissions are wasted investments.
- **Improvement of internal market conditions** and extension of that market are likely to have benefits, particularly given the harmonisation of higher technical standards.
- Neighbouring countries with energy resources face the challenge of **managing massive income** over short time periods from energy exploitation that may only last a couple of decades – the EU may be able to offer guidance and assistance towards long-term sustainable and diversified economic development.
- Energy relationships are mutually beneficial for buyer and seller, and hence there is a **real fulcrum for leveraging reform**, in a way that demands real cooperation from both sides – sellers may be able to convince the EU to focus on local needs, which can enhance programmes if those needs are identified in a responsible way.
- Climate change has already been an important aspect of EU-Russia energy relations, and Russian **ratification of the Kyoto Protocol** is in no small measure due to such diplomacy – i.e., these channels can be important (and should be used for other non-signatories as well as for the establishment of a mutual understanding about the post-2012 international climate regime).

…but the ENP is limited in view and not fully consistent with climate and energy policy

Despite addressing a range of important issues it is clear that the ENP is limited in its view, often failing to address important issues, and not coherent with EU climate change and energy policies:

- The emphasis is clearly on securing very concrete benefits for the EU (such as physical interconnections), whereas the **benefits to neighbours is primarily assumed** to flow inherently from access to markets and market reforms, without particular attention to guaranteeing specific benefits. There is almost no consideration of issues like access to energy and fuel poverty, while these are clearly an important problem in neighbourhood countries.
- **Evidence of the benefits of the internal energy market in the EU is as yet unclear** – the state of competition has been criticised in a series of Commission benchmarking reports, and an upcoming assessment is even more critical. While much of this is due to the *state* of competition rather than the inherent *nature* of competition, concerns remain about the degree to which assumed benefits will be achieved.
- **Energy efficiency and renewable energy** (EERE), of which there is massive potential in ENP countries, **is not considered in appropriate scope and detail**. There is little evidence that competitive energy markets are any better at encouraging them as such – the most successful strategies like feed-in tariffs can be *compatible* with markets, but are in no way *due to* markets. Suggestions that JI and CDM could be

important means of putting EERE in place in ENP countries is not in any way met by the number of projects under consideration, which are few. Enhancing energy efficiency and renewable energy development will take a range of instruments, for which EU can provide administrative, legal and financial assistance. Not only would this these be beneficial from a climate change standpoint, they would diversify supply options in neighbours and even given the EU the prospect of importing renewable energy from sites where it is often more ideally located – such as solar power in North Africa or biomass in Eastern Europe.

- There is **no consideration of adaptation to climate change**, which is an even more pressing issue in neighbouring countries than in the EU. Adaptation is a wide-ranging need, from physical barriers to water, to improved construction standards, to irrigation, to capacity building on the introduction of new crop types. Given their high reliance on agriculture, ENP countries are particularly at risk from changes in the climate. Each region has particular additional challenges such as desertification and water shortages in North Africa, or aridity and ecosystem change in the Caucasus.

The EU will need to step up its efforts to be sure that the process and content reflect the needs of both the EU's citizens, and of those in neighbouring countries. Because the ENP is a dialogue between the EU and each neighbouring country, the interests of those countries are presumed to be represented by their governments. However, while the EU explicitly recognises that the *pace* of cooperation will be dictated by appropriate democratic and market reforms in neighbouring countries, less attention has been paid to the *content* of the cooperation. There must be **legitimate and wide-ranging internal dialogue** in neighbouring countries to be sure that the voice of those who are, for example, most in need of energy and most at risk from climate change, is heard in the process. Given the paucity of civil society action in most of these countries – not to mention insecurity or active repression in some – an important element of the equation is lacking.

Participation and transparency also needs to be improved on the EU side; particularly for structured access and hearings. The ENP is complex; it is difficult for civil society to follow, and to identify when, where and with whom to engage. The lack of clarity in the ENP process for outsiders risks it being seen as just another opaque EU process, the intent and usefulness of which is hard to fathom, and hence it doesn't get the attention it should. The EU needs to involve civil society more coherently and effectively.

6 ANNEX I: COUNTRY STUDY - MOROCCO

6.1 Ongoing EU-Morocco cooperation

Morocco is already involved in significant amounts of activity with the EU. These include:

- The **Euro-Mediterranean Partnership**, inaugurated at the 1995 Barcelona Conference, has been strongly supported by Morocco,
- The **EU-Morocco Association Agreement** entered into force on March 2000, forms the legal basis of the EU-Morocco relations.
- Morocco is one of the signatories of the **Agadir Free Trade Agreement** with Tunisia, Egypt and Jordan, which is also open to other countries.
- Morocco has been the leading beneficiary of **community assistance** among Mediterranean partners. MEDA funds priority sectors were: implementing the Agreement, fostering jobs and growth and reducing poverty. Total funding is indicated in table 5.1

Table 5.1: Meda allocations

	MEDA I					MEDA II				Total
	1995	1996	1997	1998	1999	2000	2001	2002	2003	1995-2003
Commitments (m €)	30	0	235	219	172	140.6	120	122	142.7	1,181.3

- Morocco received further assistance through TACIS (the **National Indicative Programme** (NIP) amounted to €426 million in 2002-2004), **Euro-Med** programmes (such as Euro-Med Youth, Euro-Med Audiovisual and Euro-Med Heritage), the **European Initiative for Democracy and Human Rights** (EIDHIR). It has been also an important beneficiary of **aid programmes**, obtaining €917m, of which €342m as European Structural Adjustment Facilities (SAF)
- Co-Chair of the Johannesburg Renewable Energy Coalition (**JREC**).
- The country has given the **European Neighbourhood Policy** a very warm reception and has been highly cooperative regarding its implementation.

6.2 Morocco's ENP Action Plan

Most of the priority actions proposed in the Morocco Action Plan are related to **human rights and social development**. In the energy sector, the priority is developing the sector and working toward the progressive **integration of the Moroccan electricity market** in the European market, in application of the **Agreement Protocol with Maghreb countries**.

Three actions are proposed in the environmental field:

- Promotion of good environmental governance (action 72)
- Environmental protection and rational use of natural resources (action 73)
- Reinforcement of cooperation (action 74): through regulation in line with EU standards, above all in the field of biodiversity, climate change, desertification and waste management. Special attention is given to the implementation of the Kyoto Protocol and the UN Framework Convention on Climate Change

The actions related to energy are more committed to security and efficiency rather than explicitly environment. Nevertheless the issue of environmental protection is mentioned, and action 69 proposes the reinforcement of the use of renewable energy sources. No specific

suggestions though are explicitly made, but the actions rather support coordination in view of the expected establishment of a related plan of action and the strengthening of appropriate institutions.

Energy is also mentioned when introducing the action on 'cooperation and regional initiatives' (12), where reference is made to research and promotion of technical projects, such as on energy. Energy and environment are further considered in relation to sustainable development (18), suggesting promotion of measures aimed at integrating the environment in other sectors, i.e. industry, energy, transport, agriculture and regional policy. Finally environmental protection is recalled in the action related to mine development (45), and in that dealing with civil society (84), encouraging, among others, organisations promoting a better environment. No other reference is made to environment and energy, not even in the actions related to transport.

6.3 Environmental, social and economic conditions in Morocco

6.3.1 Environmental issues

Morocco's main environmental issues are currently related to land degradation and desertification (soil erosion resulting from farming of marginal areas, overgrazing, destruction of vegetation); water supplies contaminated by raw sewage, siltation of reservoirs, and oil pollution of coastal waters[29].

Morocco is party to the **Kyoto Protocol** and other environmental international agreements (on biodiversity, desertification, ozone layer protection, and hazardous wastes, among others)

A National Strategy on Environmental Protection and Sustainable Development was adopted in 1995, and implemented through a **National Action Plan for the Environment**, focussing on sustainable management of water and land, and protection of air quality, promotion of **renewable energy**, prevention of natural disasters, improvement in the urban environment, environmental management and communication. Standards of environmental protection are also considered for the imports of industrial goods.

A new **framework Law on Environment Protection** was adopted in 2003.

6.3.2 Social Conditions

Population: 30.6 million in 2004, Growth rate of 1.6 percent, 19 percent are below the national poverty line[30]. Illiteracy 50 percent, ranked 124th on the UNEP Human Development Index (HDI).
Human Rights: Ratified core UN HR Conventions. Restrictions on press freedom. Torture definition not in line with the UN Convention. Non-compliance with child labour laws common. Discrimination against women has not been eliminated.
Democracy: Constitutional monarchy; the sovereign retains executive prerogatives and legislative power. Administrative capacity is poor, and corruption is a problem.
Stability: Morocco claims sovereignty over the Western Sahara, which is also claimed by the Polisario Front, thus creating tension with other countries in the region, particularly Algeria.

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[29] CIA World Factbook; 28 July 2005

[30] Development Data Group, The World Bank. 2004. World Development Indicators 2004 online

Justice and Home affairs: new institutions have been set up to fight illegal immigration, but Morocco has not yet ratified the UN Convention on Transnational Crime and its Protocols on trafficking in human beings. No specific text is addressing the issue of money laundering at present.

6.3.3 Economic situation

Morocco has a rather small but open economy. It is highly dependent on agriculture, with output variability often leading to high volatility in the growth rate. Over last decade **growth** performance has been quite disappointing (around 2.3 percent), but improving after 2001, rising at 5.5 percent due to agricultural production.

Morocco's **trade deficit** has been traditionally negative, due to high fuels, agricultural and consumer goods imports.

The overall **unemployment** rate is quite high, at 12.8 percent in 2003

Morocco is currently part of the **World Trade Organisation**

Tab 6.1: Key economic indicators[31]

	1984	**1994**	**2003**	**2004**
GDP current US $ (b)	12.8	30.4	43.7	50.1
GDP growth (annual %)	4.3	10.4	5.2	3.3
GDP current US $ per capita	597	1,152	1,456	1,637
Debt as % of GDP	109.1	75.7	43.2	37.4

6.4 Morocco's energy sector

Morocco is a net importer of electricity. The internal production is obtained mainly through fossil fuels. It is also a transit country for Algerian gas sold to Spain. Morocco is looking to increase its trade in energy, in order to face its increasing demand. Electrification of rural areas is progressing.

Electricity: the public monopoly has been opened up, and energy generating concessions have been granted to private operators. Morocco also signed the Memorandum of Understanding for the Maghreb electricity market, whose integration in the EU market was developed in the EuroMed energy forum held in Rome on December 2003.

Gas: a Gas Development Plan was set out to improve Morocco's gas connections. There are also plans to diversify supply through a LPG network

Renewables: currently around 5 percent of electricity is produced through hydroelectric power plants and biomass. Technological development of renewable sources is promoted by the Renewable Energy Development Centre (CDER).

Oil: Morocco is planning to re-orient its production from heavy fuels towards the processing of light oil products.

[31] Ibid. 1

Table 6.2: Moroccan energy indicators[32]

	Electricity	natural gas	oil
Production	13.91 TWh (b)	50 Mcm (a)	1,000 bbl/day (a)
Consumption	14.24 TWh (b)	50 Mcm (a)	167,000 barrels/day (c)
per capita	446 MWh (b)	1.5 cm (a)	0.012 barrels/day
Exports	0 (b)	0	NA
Imports	1.3 TWh (b)	0	NA
Reserves		665.4 Mcm (a)	3m barrels (c)

Note: (a): 2001 estimates; (b)2002; (c) 2004 estimates

In 2003 the Commission listed two projects related to Morocco among the Electricity Projects to be declared Priority Projects of European Interest or Pan-European Interest:

- a project reinforcing the interconnection between the Moroccan power grid at Mellousa and the Spanish power grid at Puerto de la Cruz by a second AC link passing through the Straight of Gibraltar.
- A 400 kV line between Morocco (Bourdim) and Algeria (Hassi Ameur) with reinforcement of the internal connections, permitting transit of new Algerian production[33].

[32] CIA World Factbook; 28 July 2005

[33] COM (2003) 262 final, Communication from the Commission to the Council and the European Parliament on the development of energy policy for the enlarged European Union, its neighbours and partner countries'

7 ANNEX II: COUNTRY STUDY - AZERBAIJAN

7.1 Ongoing EU-Azerbaijan Cooperation

In recent years the European Union has shown an increasing interest in the Caspian Sea region, in the light of the enlargement of the EU, and driven by interest in the Caspian Basin oil and gas reserves. At the General Affairs Council of February 2001, the EU confirmed its willingness to play a more active political role in the Southern Caucasus region and its intention to look for further ways to support efforts to prevent and resolve conflicts in the region, and to participate in post-conflict rehabilitation.

Azerbaijan already has a history of diplomatic and funding cooperation with the EU:

- The Partnership and Cooperation Agreement (PCA) entered into force in 1999, providing the legal framework for EU-Azerbaijan relations
- EU and Azerbaijan have accorded each other Most Favourite Nation (MFN) treatment and Azerbaijan benefits from EU's Generalised System of Preferences (GSP)
- In 1998 the European Commission appointed a Special Envoy to the Republic of Azerbaijan
- In 2003 the Council appointed the first EU Special representative for the Southern Caucasus
- Between 1992 and 2004 the EU provided Azerbaijan with financial assistance amounting to some €4000 million.
- The TACIS National Indicative Programme (NIP) 2004-2006 focuses on poverty, institutional reforms, private sector and economic development
- The TACIS Regional programme is mainly dedicated to transport, energy, environment and home affairs
- In June 2004, Azerbaijan (together with the neighbouring Caucasus countries Armenia and Georgia) was included in the European Neighbourhood Policy

Tab 7.1 Total EC grants to Azerbaijan (1992-2006) Million €[34]

	1992 1994	1995	1996	1997	1998	1999	2000	2001	2002 2003	2004 2006	**Total**
TACIS National Allocations	20.50	6.00	8.00	8.00	8.00	8.00	7.00	7.00	14.00	30.00	116.50
Exceptional Macro-Financial Assistance					10	10	10				30.00
Humanitarian	31.10			28.82	9.69	6.10	9.66	5.15	1.57		92.09
FEOGA		43.00	22.70								65.70
Food Security			15.00	16.00	14.00	12.00			20.00		77.00
Rehabilitation			3.00	4.00	4.50	3.20	3.67				18.37
Exceptional Humanitarian Aid		8.00						1.50			9.50
Total	51.60	57.00	48.70	56.82	46.19	39.30	30.33	13.65	35.57	30.00	**409.16**

Note: grants from Tacis Regional programme have not been included

[34] SEC (2005) 286/3, Commission Staff Working Paper, Annex to 'European Neighbourhood Policy' Country Report Azerbaijan

7.2 Azerbaijan's ENP Action Plan

The Action Plan for Azerbaijan has not yet been presented by the Commission, but the following objectives are to be included:

- Strengthening the rule of law, democratic structures and pluralism and enhancement of democratic election standards
- Implementation of effective reform in the rule of law
- Enhanced protection of human rights and of media freedom
- Increased efforts towards a balanced development of the overall economic system
- Improvements in the business climate and public sector modernisation
- Reform of tax and customs administrations and legislation
- Fighting corruption and fraud
- Increased transparency in the management of oil revenues and in the privatisation process
- Poverty reduction, sustainable development and environmental protection
- Progress in WTO accession
- Progress in conflict resolution and enhanced regional cooperation.

On 25 April 2005 the Council acknowledged the Commission Communication of 2 March on ENP and the new National reports (on Armenia, Azerbaijan, Egypt, Georgia and Lebanon). Discussion on Azerbaijan Action Plans have not started yet, but the Council encouraged Southern Caucasus regional cooperation and progress in conflict resolution, welcoming the determination expressed by Armenia, Azerbaijan and Georgia to use the action plans as essential instruments for strengthening collaboration[35].

7.3 Environmental, Social and Economic Conditions in Azerbaijan

7.3.1 Environmental issues

The Abseron Yasaqligi (Apsheron Peninsula including Baku and Sumqayit) and the Caspian Sea are considered among the ecologically most devastated areas in the world because of severe air soil and water pollution [36], linked to oil extraction.

In 1998 Azerbaijan approved a National Environmental Action Plan, which identified five priorities; pollution from industrial production, Caspian Sea, forestry, land and biodiversity issues, institutional development and policy issues. It also recognised the need to implement environment into other sectors. Azerbaijan has also developed a National Programme on Environmentally Sustainable Socio-Economic Development in 2003, including an Action Plan for 2003-2010. References to environmental policies are also given in the State Programme on Poverty Reduction and Economic Development for 2003-2005, and in the not-yet-adopted National Environmental Health Action Plan.

A framework law on environmental protection was adopted, and other specific regulations issued (e.g. on water quality, mineral resources, etc). Still, strengthening of regional and local environmental structure should be given special attention.

Among others, a national programme on natural resources management has been developed.

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[35] Press release 25/04/2005

[36] Ibid. 1

Azerbaijan is a Party to the Kyoto Protocol.

7.3.2 Social conditions

Population: population in Azerbaijan amounted to 8.3 million in 2003, growing at an average rate of 0.8 percent. Even if average living standards are improving, poverty is still widespread, with 45 percent of the population living below the national poverty line. Azerbaijan is ranked 101st in the 2005 Human Development Report, with an HDI value of 0.729.

Human Rights: Azerbaijan is party to most UN and Council of Europe (CoE) HR conventions. Nevertheless, press and media freedom are still limited, freedom of association is uneven among workers' classes, the situation of state prison remains a matter of concern, access to health care is low, violence against women remains a problem and the protection of the rights of the child appears quite weak.

Democracy: Azerbaijan is a presidential republic. Despite a formal separation of powers, the executive remains clearly predominant. The latest parliamentary elections, which took place on October 2005, aroused concerns over their legitimacy. Corruption remains a serious problem.

Stability: ethnic tensions over the Nagorno-Karabakh region resulted in a war between Armenia and Azerbaijan in 1991. A cease-fire was agreed in 1994, but the situation is still tense and very limited cooperation in the Southern Caucasus has been possible. In addition, the Caspian Sea border demarcation has not yet been determined, and its southern part, in particular, remains disputed.

Justice and Home affairs: the situation of refugees remains problematic. Illegal migration, human trafficking and drug transit are also important issues. Money laundering is likely to increase with the expansion of the Azeri economy.

7.3.3 Economic situation

Azerbaijan's main export is oil and gas (about 86 percent of total exports in 2003), and their production has been increasing since 1997. As a result, the GDP rate is expected to grow at about 10 percent, but concerns about the growth rate arise when considering that oil production is projected already to fall from 2010 and dry out in 2025. Thus, one obstacle to economic progress is the need for stepped up foreign investment in the non-energy sector. A second obstacle is the continuing conflict with Armenia over the Nagorno-Karabakh region. Long-term prospects will depend on world oil prices, the location of new pipelines in the region (transit revenue), and Azerbaijan's ability to manage its oil wealth and to develop on this basis a diversified economy beyond the few decades the oil wealth will still last [37].

The real **unemployment** rate, as reported by the International Labour Organisation in 2003, is around 10.7 percent.

Azerbaijan applied for membership in the **World Trade Organisation**, but the accession negotiations are still at an early stage.

[37] CIA World Factbook; 28 July 2005

Tab 7.2: Key economic indicators [38]

	1994	2003	2004
GDP current US $ (b)	3,3	7,3	8,5
GDP growth (annual %)	-19.7	11.2	10.2
GDP current US $ per capita	430.8	850.7	
Total debt/GDP	3.4	24.5	24.2

7.4 Azerbaijan's energy sector

Azerbaijan is a strategic player in Caspian energy (oil and gas) politics, both as a producer and as a future transit country, although insufficient infrastructure prevents gas exports at this stage and gas is mainly imported from Russia. It is Azerbaijan's intention to switch its power plants increasingly from oil to gas. Income is likely to increase in the next decade as the Caspian oil and gas reserves will be exploited and major export pipelines will be completed.

Renewables are used in hydropower plants, which covers about 10.3% of total electricity production. The sector is going to be gradually privatised. The construction of new power generation capacities is underway.

Table 7.3: energy indicators[39]

	electricity	natural gas	oil
Production	17.55 TWh (b)	5.72 Bcm (a)	312,800 bbl/day (a)
Consumption	17.37 TWh (b)	6.72 Bcm (a)	140,000 bbl/day (c)
per capita	2,1 MWh (b)	849 cm (a)	17.7 bbl/day
Exports	1.56 TWh (b)	0	NA
Imports	1.3 TWh (b)	1 Bcm (a)	NA
reserves		62.3 Bcm (d)	589 Mbbl (d)

Note: (a): 2001 estimates; (b)2002; (c) 2004 estimates; (d) 1 Jan 2002

The entry into operation of the (hotly disputed) oil pipeline Baku-Tbilisi-Ceyhan and the completion of the Baku-Tbilisi-Erzurum gas pipeline by 2006 will be crucial for marketing Caspian energy resources.

[38] Development Data Group, The World Bank. 2004. World Development Indicators 2004 online

[39] CIA World Factbook; 28 July 2005

8 ANNEX III: RENEWABLE ENERGY POTENTIAL, CURRENT STATE, NATIONAL OBJECTIVES AND CURRENT PROJECTS IN ENP COUNTRIES.

Country	RE potential	Current state	Objectives	Projects
Algeria	Solar (very high) 2.000.000 km2 receive yearly a sunshine exposure equivalent to 2500/KWH per square meter Hydro (moderate, almost exploited) Wind (high, coasts and offshore) Geothermal (moderate)	Hydro 300MW	2050 mainly CSP, some PV, wind and tidal to cover 5% of the national electricity needs by 2010 with RE. Capacity targets for CSP power are 500 MW of new ISCCS plants until 2010	PV and solar power for remote villages in the extreme south Solar energy for water pumping (MEDA)
Armenia	Hydro (high, half exploited) wind (high) biomass (high) biogas (high) Solar (low potential due to costs) geothermal energy (not enough explored yet)	No significant use of RE, only hydro already in operation for electricity	No concrete strategy to promote RE or EE	mini-hydro, wind, and biomass projects (EBRD, co-fin USAID, WB, GEF, KfW) support to Ministry of Energy for alternative energy and EE (TACIS) EE project (USAID)
Azerbaijan	Hydro (high, mainly small-scale) Wind (high, still in planning process) Biomass/ biogas (high) Solar (high) Geothermal (minor)	Hydro 790MWe, 16.9% for electricity (mostly large-scale, only 5% small-scale) Geothermal in use for greenhouses, biomass in domestic use (no data available)	No concrete strategy or targets to promote RE or EE Master plan for hydro power exists (small and medium scale)	No EU programme energy projects (2004-2005)
Belarus	Wood and other biomass resources (high) hydro and wind power (minor, but few are already operating) solar, geothermal (minor and not fully explored yet)	Hydro 0.1% in 2000, 7MWe two wind turbines of total 850 kW installed capacity. Biomass and biogas	No concrete strategy to promote RE or EE Targets for biomass/ biogas Programme for small-scale hydro	WB project EE in heating systems, Wood Waste for Municipal Heating and Hot Water Supply (GEF), EE21 projects heating system, cogeneration, street lightening No EU programme energy projects (2003)
Egypt	Hydro (high) Wind (high, esp. offshore and onshore at coast)	Hydro (large-scale) 13.7% 13019GWh, wind 1% 367GWh (2002)	Plans 3% RE of electricity by 2010, Wind by 850 MW 2010 2050 RE in electricity mix mainly CSP,	Part-solar plant (WB, GEF) EE in lightening, solar and small-scale wind (UNDP)

	Solar/ PV (high) Geothermal (high)	Wind 145 MW	wind, hydro, PV, geothermal and biomass	
Georgia	hydro power (high, already operating) geothermal (high) wind (high) biomass (high)	Hydro power (2,600MWe) and biofuels already used in the industry sector Wind 6KW Geothermal 350MW	Plans for RE and EE exist but not concrete Plans or targets for geothermal and small and medium scale hydro exist	EU programme supports energy diversification and independence (2004-2005)
Jordan	Solar (water heating) (high) PV (moderate) Wind (high, not fully explored) Biomass (minor, methane from solid waste) Hydro (minor, not fully explored yet)	Hydro: 7MW currently, potential 50MW PV 184 kWP, PV stations used in remote areas	aiming at increasing the contribution of these resources to the total primary energy mix. 2050 RE in electricity mix mainly CSP, some PV	Experimental biogas digester (UNDP, GEF), bioenergy from solid waste (GEF) EE in SME industry (UNDP)
Israel	Solar (high) Biomass (minor) PV (moderate-high) Wind (moderate, mainly in the North) Hydro (high)	3% solar power (mainly for water heating) of total energy requirements	2% of electricity from renewable energy resources by 2007 5% of electricity from renewable energy sources by 2016 2050 RE in electricity mix mainly CSP, some biomass, PV	R&D for PV and solar (Palestine: hybrid wind-solar power for lightening, solar power (UNDP))
Lebanon	Solar (moderate) PV (minor) wind (moderate, not fully explored yet) hydro (minor) biomass (minor)	Hydro: 283MW currently, potential 533MW	2050 RE in electricity mix mainly CSP, some PV	Solar for water heating (UNDP)
Libya	Solar (high) PV (high) Wind (high) Biomass (minor)	RE not in use yet	2050 RE in electricity mix, mainly CSP, some wind and PV	
Morocco	Wind (high) PV (high) Solar (high) Hydro (moderate) Geothermal (high)		2050 RE in electricity mix, mainly CSP, some hydro, wind, PV and geothermal	Solar energy for water pumping (MEDA)
Moldova	Hydro (moderate potential, already operating) Wind (moderate) Biomass (moderate)	Hydro currently 150-300GWh/y (2,100GWh/y potential) Hydropower accounts for 2% of total	Wind, biomass, hydro: By 2005 to reducing with 10% the energy intensity of the GDP (2-3% per year) and use of renewable sources of energy 2,5-3% of	Biomass project from agricultural residues (GEF) EE in housing and heating systems (GEF) No EU programme energy projects (2003)

	Solar (moderate)	generating capacity	total energy amounts.	
Russian Federation	Hydro, wind, biomass (high) Solar (only in the south) Economic potential 30% TPES, technically even higher 270 million tonnes of coal equivalent (Mtce) per year1, including 115 Mtce/y of geothermal energy, 65.2 Mtce/y of small hydropower, 35 Mtce/y of biomass, 12.5 Mtce/y of solar, 10 Mtce/y of wind and 36 Mtce/y of low potential heat	RE 3.5% of its total primary energy supply (TPES), 2/3 hydro RE (without large hydro) 0.5% of total electricity generation in 2000 and 200	Main Provision of Russia's EE strategy: Price strategy, reduction in the annual energy consumption growth of about 45 percent by 2020 The energy sector accounts for an estimated 40 percent of this potential saving, with another 30 percent from industry, 20 percent from the residential sector, 7 percent from transport and 3 percent from agriculture.	geothermal power plant located in Mutnovsky, southern Kamchatka, Russian Federation (EBRD) RE hydro power service and supply through TACIS (2004). EE projects for buildings, heating, street lightening, industry (EE21). EE and energy savings construction and renovation of buildings, transport sector, development of more efficient power plants (TACIS)
Syria	Solar (high) Wind (high) Biomass (moderate) biogas (high) Hydro (moderate) PV (high)	No significantly use of RE yet, some hydro (Euphrates river), solar (mainly domestic), wind, oil shale other biomass Hydro: 1505MW currently, potential 1236MW PV for water pumping 80KwP	4% RE of total energy need in 2011 RE should achieve half of the energy required by 2050 RE in electricity mix in 2050 mainly CSP (2/3), some hydro, biomass, wind, PV	PV, SHS, solar cookers, solar water heaters for remote areas (FAO) State programme to install wind farms (800MW for electricity) and solar in remote areas (16,000 solar power units in 1,000 villages) and demand-side and supply-side EE (UNDP)
Tunisia	Solar (high) PV (moderate) Wind (high) Biomass (moderate) Hydro (minor) Geothermal (moderate)	12% biomass, 0.1% hydro (2002) RE primary energy 2002 0.9%	Potential 2010, 2020, 2030 Wind in MW 310; 1130; 1840 (onshore and offshore) Solar m2 280,000; 950,000; 2,500,000 PV MVc 3.5; 8.5; 18 Biogas 30; 50; 80 RE primary energy 2.7%; 5.6%; 6.4% (2002 0.2%) electricity 5.8%; 11.7%; 12.2% 2050 RE in electricity mix, mainly CSP, some tidal, wind and PV	Solar energy for water pumping (MEDA) Tunisia-Energy Efficiency Program/Industrial Sector Project (WB, GEF)
Ukraine	Wind (high) 42Twh/y Hydro (high, 26% exploited yet) Biomass (high) Biomass could potentially cover 5.3% of the total primary energy demand	Only hydro significant, 5% of the country's electricity (2003), 9% of installed generation capacity. 40MW.	Vision 2050 15,000TWh/y Wind 1 990 MW by 2010 wind energy national target 200 MW by 2010 state programme Up to 200 MW by 2005, 250 by 2010	EE projects for heat, street lighting, buildings, industry (EE21)

	Geothermal (high) Solar (moderate)	biomass in primary energy demand is less than 0.5% installed solar capacity is about 5-8 MWth geothermal currently 13 MWth Solar hot water supply plants with power about 5-8 MW (thermal) Geothermal 13MWt (thermal)	targets for hydro (small-scale), geothermal and biomass in the state programme of using RE	

Note: CSP = concentrating solar power; ISCCS = integrated solar combined cycle steam

9 ANNEX IV: SOCIAL, ENERGY AND CLIMATE STATISTICS FOR ENP COUNTRIES

Table IV.1: Social and Climate Change Statistics

	Population			GDP PPP					Governance		Greenhouse Gas Emissions				
	rank	thousands of people	% world total	$ per person	rank	total, M $	rank	% world total	rank	index	rank	Mt CO2	% world total	ton CO2 per person	rank
EU-25	--	726,749	11.86%	17,316	--	12,584,094	--	26.90%	--	66.5	--	7,638.10	22.77%	10.5	--
Algeria	36	30,835	0.50%	5,503	85	169,690	41	0.40%	139	27.8	44	112.2	0.33%	3.6	99
Egypt	18	65,177	1.06%	3,683	111	240,068	31	0.50%	72	53.2	32	178	0.53%	2.7	110
Israel	96	6,439	0.11%	20,005	26	128,811	50	0.30%	37	71.5	52	77.3	0.23%	12	28
Jordan	110	5,031	0.08%	4,048	107	20,365	99	0.00%	53	62.7	98	23.8	0.07%	4.7	85
Lebanon	116	4,385	0.07%	4,314	102	18,919	103	0.00%	85	47.5	107	18.1	0.05%	4.1	93
Libya	104	5,341	0.09%	7,489	66	40,000	74	0.10%	144	25.0	71	53.7	0.16%	10.1	40
Morocco	38	29,170	0.48%	3,724	110	108,630	54	0.20%	57	59.6	70	58.2	0.17%	2	132
Syria	56	16,587	0.27%	3,552	112	58,923	62	0.10%	127	33.0	56	70.6	0.21%	4.3	91
Tunisia	82	9,674	0.16%	6,648	70	64,309	60	0.10%	38	71.0	86	29.8	0.09%	3.1	107
					0		0				0				0
Armenia	130	3,087	0.05%	2,732	121	8,434	133	0.00%	118	36.3	140	6.7	0.02%	2.2	127
Azerbaijan	87	8,111	0.13%	2,877	120	23,336	95	0.00%	126	33.9	78	42.3	0.13%	5.2	75
Georgia	106	5,224	0.09%	2,087	133	10,903	126	0.00%	115	36.7	123	11.8	0.04%	2.3	124
					0		0				0				0
Belarus	80	9,970	0.16%	5,163	91	51,475	66	0.10%	135	30.1	51	78.7	0.23%	7.9	55
Moldova	117	4,270	0.07%	1,379	157	5,887	144	0.00%	113	37.0	127	10.9	0.03%	2.5	116
Russian Federation	7	144,752	2.36%	7,724	63	1,118,085	11	2.40%	130	32.5	4	1,918.70	5.72%	13.3	21
Ukraine	25	49,093	0.80%	4,574	98	224,535	34	0.50%	123	34.3	13	516.8	1.54%	10.5	35

Table IV.2: Energy statistics for ENP countries

	Energy use					Carbon intensity of energy use			Carbon intensity of electricity production			Carbon content of proven fossil fuel reserves				
	rank	t oil eq. per person	total, Mt oil eq.	rank	% world total	rank	t CO2/ t oil eq.	index	rank	g CO2/ kWh	Index	rank	Mt Co2	t CO2 per person	rank	t CO2/ t oil eq
EU-25	--	3.6	2,577	--	25.90%	--	2.3	61	--	433.2	34.4	--	735,669	1,012.30	--	3.618
Algeria	76	0.9	29	42	0.30%	35	2.52	67.1	33	675.3	53.6	26	14,225	461.3	33	2.539
Egypt	87	0.7	46	34	0.50%	24	2.65	70.7	70	422.7	33.6	37	5,372	82.4	62	2.525
Israel	37	0.1	20	55	0.20%	14	2.96	79.6	18	809.6	64.3	98	45	7	93	2.357
Jordan	74	1	5	97	0.10%	11	3.04	81.7	36	653.5	51.9	103	7	1.4	103	2.362
Lebanon	70	1.2	5	98	0.10%	18	2.87	76.9	29	751.2	59.6	111	0	0	111	--
Libya	38	3.1	16	63	0.20%	25	2.64	70.6	38	632	50.2	24	17,212	3,222.70	10	2.921
Morocco	118	0.4	10	77	0.10%	12	3.02	81.3	37	650.3	51.6	108	2	0.1	110	2.47
Syria	75	0.9	16	66	0.20%	1	3.68	100	59	505.8	40.1	55	1,601	96.5	60	2.73
Tunisia	83	0.8	8	85	0.10%	42	2.45	65	56	515.8	40.9	78	363	37.5	71	2.696
Armenia	85	0.7	2	120	0.00%	90	1.6	40.9	96	266.3	21.1	111	0	0	111	--
Azerbaijan	64	1.4	12	76	0.10%	32	2.55	67.8	30	719.6	57.1	35	5,893	726.6	29	2.659
Georgia	92	0.7	3	108	0.00%	29	2.58	68.9	105	131.2	10.4	111	0	0	111	--
Belarus	46	2.4	24	52	0.20%	43	2.44	64.8	8	888.5	70.5	111	0	0	111	--
Moldova	90	0.7	3	115	0.00%	73	2.12	55.8	1	1,259.80	100	111	0	0	111	--
Russian Federation	21	4.2	614	4	6.20%	39	2.48	65.9	46	568	45.1	2	410,268	2,834.30	12	3.381
Ukraine	42	2.8	139	16	1.40%	41	2.46	65.4	54	525.6	41.7	12	71,169	1,449.70	23	3.986

10 REFERENCES

Main Text

Agoumi, Ali 'Vulnerability of North African Countries to Climatic Changes Adaptation and Implementation Strategies for Climate Change' International Institute for Sustainable Development & Climate Change Knowledge Network, 2003.

Centre for European Policy Studies (CEPS) 'Market Stimulation of Renewable Electricity in the EU: What degree of harmonisation of support mechanisms is required?' October 2005.

European Commission, 'Towards a European Strategy for the Security of Energy Supply,' COM (2000) 769

European Commission 'Wider Europe – Neighbourhood' Communication (COM (2003) 104)

European Commission, 'On the Development of Energy Policy for the Enlarged European Union, its Neighbours and Partner Countries' COM(2003) 262

European Commission, 'Paving the Way for a New Neighbourhood Instrument' COM (2003) 393

European Commission, '[Proposed] Regulation on a European Neighbourhood and Partnership Instrument (ENPI)' COM (2004) 628

European Commission, 'European Neighbourhood Policy Strategy Paper' COM (2004) 373

Fenhann, Juergen, UNEP-Riso, 'CDM pipeline' www.cd4cdm.org

International Energy Agency (IEA), 'World Energy Investment Outlook 2003; Outlook for European Gas Demand, Supply and Investment to 2030'

IPCC Third Assessment Report, Working Group Two, Table SPM2, www.grida.no/climate/ipcc_tar/wg2/017.htm

Piebalgs, Andris, Commissioner for Energy, speech the plenary of the conference 'Towards Zero Emission Power Plants; European CO_2 Capture and Storage Conference,' Brussels, 13 April 2005.

UNDP/GEF Regional Coordination, 'Vulnerability of the Maghreb Region to Climate Change, and Needs for Adaptation (Algeria, Morocco, Tunisia)', October 2002

Annexes I and II

CIA World Factbook; 28 July 2005

Development Data Group, The World Bank. 2004. World Development Indicators 2004 online

European Commission, DG External Relations press release 25/04/2005

SEC (2005) 286/3, Commission Staff Working Paper, Annex to 'European Neighbourhood Policy' Country Report Azerbaijan

Annex III

Dahlsveen, Trond/ Arild Nordby 2002: Cleaner Production and Energy Efficiency In the Republic of Moldova. Status Report. Prepared for the Norwegian Ministry of Foreign Affairs. Oslo. http://www.ee-21.net

Energy Research Group: A Sub-Regional Outlook of Renewable Energy Potential: The Case of Jordan, Syria and Lebanon. Draft Conference Paper Prepared for 'Renewable Energy' Working Group Global Network on Energy for Sustainable Development; Beirut. http://webfea-lb.fea.aub.edu.lb

German Aerospace Centre (DLR)/ Institute of Technical Thermodynamics/ Section Systems Analysis and Technology Assessment 2005: Concentrating Solar Power for the Mediterranean Region. http://www.dlr.de/tt/med-csp

Global Environmental Facility: Project Database. http://www.gefonline.org/home.cfm

Khelil, Chakib 2004: Keynote Address. Plenary Session I: Opening Session at Renewables 2004 Conference. www.renewables2004.de

Konechenkov, Andrij (Renewable Energy Agency NGO): Renewable Energy. Focusing: Ukraine. Vision 2050. Kiev. http://www.inforse.dk

New & Renewable Energy Authority Egypt 2001: Implementation of Renewable Energy Technologies – Opportunities and Barriers. Egypt Country Study. UNEP Collaborating Centre on Energy and Environment, Risø National Laboratory, Denmark. http://uneprisoe.org

OECD/ IEA 2002: Russian Energy Survey: 2002. Synopsis of the Energy Efficiency Chapter. Paris. www.weea.org or www.iea.org

OECD/IEA 2003: Renewables in Russia from opportunity to reality. Paris. www.iea.org

Pletka, Ryan (Black & Veatch) for European Bank for Reconstruction and Development: Renewable Energy Resource Assessment. Renewable Energy Country Profile (Armenia, Azerbaijan, Belarus, Georgia, Moldova, Russia, Ukraine). Version 0.6b. http://www.ebrdrenewables.com/

SEFI/UNEP 2005: Case Study Egypt. www.sefi.unep.org

SEFI/UNEP 2005: Case Study Tunisia. http://www.sefi.unep.org

Solar Paces Website: CSP Project Developments in Algeria. http://www.solarpaces.org

Annexes IV and V

World Resources Institute, 'Climate Analysis Indicators Tool (CAIT)' http://cait.wri.org