Chapter four
Investment context for RES-E in the new Member States

In the previous chapters of this paper, the circumstances related to the promotion of RES-E technologies in the new Member States have been described mainly from two perspectives: the policy framework for the promotion of electricity generated from renewable energy sources and the on-going energy market reform and its impact on the future development of renewable energy sources. For a complete analysis of key factors that are likely to influence future investments in renewable energy sources in the new Member States, one other component needs to be added: the economic background and the business environment within which new investments in renewable energy sources will take place in short to medium term, in other words within a time frame relevant to the 2010 RES-E targets.

Consequently, central to the discussion in this chapter are questions concerning the macroeconomic factors that are likely to influence the market development for renewable energy sources in short to medium term, risk factors associated with such investments and the ability of local communities to become a viable investment partner.

The analysis in this chapter starts from the premise that given the stranded financial resources available in the NMS and current market conditions, timely investments in renewable energy sources\(^1\) can only take place if they are integrated into a more general strategy for sustainable development. Sustainable development on the other hand, can be greatly affected by international developments (and reflected in the monetary and fiscal policies) as well as the ability of each country to withstand economic pressures and adapt to new market conditions. The link between monetary and fiscal policies and economic growth is a fundamental one and is in essence rather straightforward: growth tends to rise when instability and risk diminishes, in particular those related to monetary institutions. In the case of the NMS, the issue of monetary policies is rather crucial as they are expected to join the Euro zone within

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\(^1\) By “timely” the author means a period of time which is meaningful in relation to the RES-E 2010 targets.
the time frame considered in this discussion. Consequently, they have to set common monetary goals with the EU-15 while adjusting in the same time their economies to off-set the impact of the transition process. The ability of the NMS to adapt to a highly competitive European and world environment is yet another complex issue and will be discussed in some detail in this chapter.

Consequently, this chapter will start with a brief overview of the macroeconomic context in the NMS and will continue with a discussion on some of the challenges, in particular at local level, that the NMS may need to overcome in order to ensure a good investment climate for RES-E technologies in short to medium term. Finally, risks associated with RES-E investments will be discussed in some detail and explanations will be provided about how these various risks have been addressed within the ADMIRE-REBUS model. The chapter will end with a discussion on possible solutions to address the lack of financing in the NMS for renewable energy projects.

The findings presented in this chapter have been used in the modelling exercise (results are discussed in detail in Chapter five), albeit in a rather indirect way, to elaborate various assumptions concerning the electricity demand forecast, the choice of various debt rates to reflect a rather different cost of capital than it was assumed for the EU-15, project lead times and transaction costs. This way, the modelling exercise reflects to the extent possible the current situation in NMS.

4.1. The macroeconomic context

Although trading relations among EU-15 and the new Member States have existed before 1 May 2004, the accession process led to the creation of a unique type of market that provides equally, advantages and challenges for its participants. Most of the countries that now form the new European Union are rather small in size and therefore it is to be expected that together with increasing market openness, their vulnerability vis-à-vis developments on international markets in general and European markets in particular (e.g. capital markets, commodity markets such as oil, etc) is likely to remain high in short to medium term, until policies and market strategies are being fine tuned to adjust national circumstances to the new European and world economic order.
4.1.1. External pressures and their potential impact on the European economy

In order to better understand the relationship between national economies, monetary and fiscal policies and international developments on commodity markets, it is important to have a look at the monetary policy transmission mechanisms. As Figure 4.1 below shows, there are few external developments that can influence monetary decisions, which include changes in the global economy, changes in national fiscal policies and changes in commodity prices. The impact is mainly reflected in the need for the central bank (whether it is the ECB or the national central bank in case of the new Member States and some EU-15) to adjust interest rates which in turn may affect asset prices and exchange rates. Depending on the order of magnitude, the rise in asset prices and the change in the exchange rates could feed into wages and therefore influence demand and supply in goods and services and finally lead to new price developments. Below, the impact of each of these factors is being discussed in some detail.

2 By external means external to the Central Bank control. In the Euro area, the European Central Bank (ECB) is the only bank with a mandate to conduct the monetary policy. For the new Member States and the EU Member States that have not joined yet the euro area, the National Central Bank is normally in charge with conducting the monetary policy for the respective Member State. As Member States adopt the euro as their national currency (therefore join the euro area), the responsibility for the monetary policy is being transferred to the ECB.

3 At the moment of writing this thesis, three new Member States have expressed their readiness to join the euro area: Estonia, Lithuania and Slovenia. In June 2004, the exchange rate of the national currencies to euro has been fixed. The EC Treaty provides that countries should try the fixed rate regime for two years. If within this period there has not been any fluctuation of the exchange rate outside the normal bandwidth (±15%) and there has not been any deflation decision taken unilaterally by the Member State, the Member State will be allowed, at the end of the two year period, to join the euro area. (insert reference to the exact paragraph in the Treaty).
4.1.1.1 Some developments in the global economy and their impact on European economies

In recent years, trade increased among countries around the world faster than global output did. One consequence of this is that connections among countries have become tighter than ever before and intensified their interdependence in the same way capital mobility did. When it comes to European markets, developments in this area tend to be highly sensitive to developments in the United States, Japan and to some extent Russia and China. With respect to the US, the concerns are mainly related to the continuous deterioration of the current account balance (the deficit reached 5.7% of GDP in Q2 2004) and the

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depreciation of the US dollar (see also Figure 4.2 and related discussion further in this section).

China’s startling growth pace (9.5% in 2004) triggered a blistering surge in oil demand at a rate of 30-40% annually. To meet this demand, some analysts believe, huge oil reserves - equivalent to four times the capacity of Saudi Arabia - would need to be developed. As this is rather unlikely, oil prices may be affected by the growing demand in China unless part of this demand will be satisfied by using energy efficiency measures and alternative energy sources.

While Russian Federation undoubtedly benefits from current high oil prices, the Central Bank seems to be facing some monetary dilemmas. With an ever expanding inflow of foreign exchange, the symptoms of the Dutch disease are becoming visible in Russia. Although measures have been taken by the Russian government to redress the situation, the question remains whether the financial sector in Russia will be able to cope with the pressure. Should the Russian economy destabilize, some of the new Member States economies (mainly the Baltic States and to a lesser extent Czech Republic and Poland) may also be affected.

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6 On 3rd of December 2004, the euro was traded in New York for 1.3452 USD. Between January 2002 and February 2004, the dollar depreciated by 22% in nominal effective terms while the euro appreciated by 12% and the yen appreciated by around 6%. During the same period, the dollar declined by 43% against the euro, 30% against the BPD and 51% against the Australian dollar. (See BIS Annual Report, 2004, pg.92).


8 Ibid 7.

9 Growth in the oil and oil related industries are estimated to generate a fifth to a quarter of all federal budget revenues in Russia. However, the statement should be regarded with some caution. The World Bank Russian Economic Report from February 2004, argues that oil firms use their trading companies for selling oil to customers at market prices. This way, oil companies could sell the oil at a lower transfer costs, thus reducing taxes as trading companies are in a better position to benefit from tax relieves. Consequently, a large part of the value generated in the oil sector is being recorded in the official statistics as “service”. For details see BOFIT Russia review, 3/9.3.2004 and www.worldbank.org.ru.

10 This is not entirely due to higher oil prices. Short-term capital inflows as well played a role and led to liquidity problems early 2004 which might have had temporary negative effect on availability of commercial loans.

11 See Supra Note 5, pg.42.

12 A Stabilization Fund has been created to absorb the ruble liquidity in the market.

13 R. Süppel for instance finds that Poland, Latvia and Lithuania were among the ones hardest hit by the Russian crisis during 1998-99. For a good insight on the correlations between the business cycles of individual accession countries and the EU see R. Süppel, “Comparing economic dynamics in the EU and CEE accession countries”, ECB Working paper no. 267, ECB, www.ecb.int
Most economists seem to agree that exchange rate instability is a major threat to economic development as it brings instability in the financial markets and diminishes the ability of entrepreneurs and governments alike to plan ahead. At the moment, the world is basically split into three major currency areas, namely the ones dominated by the dollar, the euro and the Japanese yen. These areas represented in 1999 25, 17 and 12 percent respectively of the world economy, in other words covering close to 60 percent of the world trade. Hence, the chemistry between these three currencies is likely to have significant influence on the investment climate around the world, including the European countries.  

4.1.1.2 Changes in commodity prices and their impact on European markets

Within this section, a discussion on the impact the rise in commodity prices had on the European economic development is being provided. Emphasis is on oil prices as they are not only one of the main culprit for a sluggish economic growth in the euro area but an understanding of the oil economics is essential to determine prospects for renewable energy sources deployment in the near future.

Although it is beyond the scope of this paper to provide an in-depth analysis concerning the impact of recent oil price spikes on the European markets, the author believes it is useful to provide at a minimum, a brief discussion on the mechanisms at work behind this kind of events. By understanding what are the likely consequences of oil price spikes in oil importing countries and most importantly, what these countries can do to

\[14\text{ R. Mundell, “The sixth Lord Robbins Memorial Lecture: reform of the international monetary system” in Monetary Stability and Economic growth, pg. 10.}\]

\[15\text{ Some experts believe for instance that a 10% shift in the euro-dollar exchange rates could produce something like one percentage point shift in domestic prices. In times of low inflation rates of one or two percentage, this potential shift in domestic prices could make a significant difference. Consequently, the relationship between euro and dollar exchange rates should be taken seriously. See for instance Christopher Johnson, “The euro in Europe and the world” in Monetary Stability and Economic Growth, pg. 38-41.}\]

\[16\text{ As gas prices tend to follow the oil prices (as the price for oil is factored into the price for gas which, in author’s opinion, should not necessarily happen), it is important to keep in mind that similar effects that are being discussed here of oil price hikes on oil importing economies may be expected for gas importing economies, although not necessarily on the same scale. This is particularly relevant for the new Member States as there seem to be a tendency to switch from fossil fuels based energy systems to gas (imported) based energy systems. The author is well aware that gas plays a crucial role in enhancing the efficiency of energy generation and combating climate change but a rush for it could, on the other hand, produce undesirable economic outcomes. In addition, as far as the new Member States are concerned, gas is also the main competitor to renewable energy sources due in some cases to its subsidised price.}\]
minimize their exposure to such risks (which should, in the author’s view be recognized in full by investors in conventional energy sources), one should be able to better interpret the current economic situation in the new Member States and the dilemmas policy makers in these countries may soon have to face. Additionally, the underlying short and medium term market risks relevant to investments in renewable energy sources in the new Member States become easier to identify.

Changes in oil prices and their effect on oil importing economies

In case of large oil stocks, current oil market conditions but also the short and medium term outlook, are the result of the interactions between production, stocks and demand. However, as we have learnt from recent developments in the oil markets, the word “stocks” indeed plays a crucial role in the overall discussion. Given the recent debates on oil stocks and reserves\(^\text{17}\) and the fact that nearly all OPEC\(^\text{18}\) countries are close to or producing already at full capacity\(^\text{19}\) (and there is also very little spare capacity in non-OPEC countries)\(^\text{20}\), short term political developments\(^\text{21}\) and disruptions along the production-consumption channel (such as the situation in Iraq), are adding to the uncertainty (and volatility) surrounding the oil prices and its future deliveries.

It is evident that the impact of oil prices on the economic activity (or rather its magnitude) will highly depend on its oil intensity\(^\text{22}\) and its dependency on oil imports. With the EU-15 dependent 75% on oil imports and the NMS 95%\(^\text{23}\), it is expected that the impact of recent oil price surges on these economies will not be without significance in short to medium term.

\(^\text{17}\) see discussion in Chapter 3
\(^\text{18}\) Organisation of Petroleum Exporting Countries
\(^\text{19}\) In August 2005, the spare capacity among the six primary oil producers in the Gulf (Iran, Iraq, Kuwait, Qatar; Saudi Arabia and the United Arab Emirates was established at 1.7 mbpd, the lowest level since 2003. For details see World Bank, “Middle East and North Africa Economic Developments and Prospects 2006: Financial Markets in a new age of oil”, pg.34, 2006, www.worldbank.org
\(^\text{20}\) “The impact of higher oil prices on the global economy”, IMF, December 2000, pg. 10
\(^\text{21}\) News on the attack of a suspected Muslim militants on a US consulate in Saudi Arabia, OPEC’s leading oil producer and the occupation of in Nigeria by villagers of three oil-producer platforms in a row over jobs supported US crude prices to settle at 42.98 USD/barrel on Monday, 6\(^\text{th}\) December, 44 cents higher than the previous Friday, Investor Guide Daily, Tuesday, 7\(^\text{th}\) December 2004.
\(^\text{22}\) It is common practice to measure oil intensity as oil consumption per unit of real GDP.
In addition, the impact of oil prices surges will also depend on how exporting countries are using the windfall revenue as the propensity to spend of oil consumers tends to be higher than the propensity to spend of oil producers. The more the oil exporting countries will decide to save revenues\textsuperscript{24}, the higher the downturn impact on global economic growth. Although the magnitude will depend on the duration of the price spike, recent studies from IMF\textsuperscript{25} and IEA\textsuperscript{26} suggest that the effects of oil price spikes might be lasting as long as two years after the price spike with high probability of being stronger in the second year.

Although the exact dynamics of the interaction between the oil prices and the economic performance is to a large extent unknown, the transmission mechanisms are relatively well understood. For oil importing countries, the effects stem from the deterioration of their terms of trade. The decline in real domestic income dampens domestic demand for non-energy products thus having an adverse effect on the overall economic activity. The direct (first round) effect of higher oil prices in the importing economy is a rise in the cost of production for goods and services and thus a rise in relative prices in the respective importing country. Depending on how tight the monetary and fiscal policies are and to what extent consumers seek to off-set the decline in their real income and producers to restore their profit margins, second-round effects of oil price spikes could also trigger upside inflationary effects and unsustainable increases in nominal wages\textsuperscript{27}.

From the investment point of view, depending on the duration of the price spike and the ability of the importing country to handle the price volatility and the deterioration of its terms of trade, higher oil prices could lead to a decrease in market confidence. In addition, anticipated changes in the economic activity will affect equity and bond valuations and possibly currency exchange rates.

\textsuperscript{24} And this is a rather plausible scenario as many of the exporting countries tend to have high public debts denominated in foreign currencies so they may want to build up foreign currency reserves. This is what seems to be happening in some of the oil producing countries in the Gulf. For details see Supra Note 19.

\textsuperscript{25} Ibid 20.

\textsuperscript{26} “Analysis of the impact of high oil prices on the global economy”, IEA, March 2004.

\textsuperscript{27} An interesting insight on the consequences of inadequate handling of the deterioration of the terms of trade is provided in Ali Zafar, “What happens when a country does not adjust to terms of trade shocks? – The case of Gabon”, World Bank Research working paper 3403, September 2004, www.worldbank.org. Although Gabon is still an oil exporting country, experts say that its oil reserves are set to dry out in 10 to 15 years so the insights are all the more interesting to understand.
The exact dynamics of the interaction between oil prices hikes and the economic activity is largely unknown hence is rather difficult to estimate with a high degree of confidence the magnitude of their impact. Nevertheless, some indications are available. For instance a recent IEA/OECD study suggests that an increase by 10 USD/barrel-from 25 USD to 35 USD-would reduce the aggregated GDP of OECD countries by 0.4% in the first and second year after the oil price spike. According to the same study, the consumer price index (CPI) would increase by 0.5% and around 400000 jobs will be lost. The effect seems to be particularly high in the euro zone mainly due to high rigidities in the labour market and high dependency on oil imports. To this end it is maybe worth observing that the assumptions underlying the results of this study have been well overshot by reality after March 2004 (the publishing date of the IEA report) as oil prices reached record levels. As previously mentioned, because of possible tight oil stocks and declining reserves coupled with increasing demand and insufficient refining capacity, political events in oil producing countries have led to a surge in oil prices. In the author’s opinion this is likely to continue at least in short to medium term.

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28 See SupraNote 26.
29 The study uses the IEA crude oil import price as proxy for international oil prices.
30 It is assumed in the study that the „normal” price for oil remains constant between 2004 and 2008 and the price rise level reaches a maximum of 35 USD/barrel within this period. The exchange rate USD/euro remains constant and set at 1.14 USD per Euro from 2004 onwards.
31 The effects of the high oil prices started to appear, UK experiencing higher inflation. According to the Irish Financial news portal Finfacts and the BBC World news, on August 16 2005, the UK Consumer Price Index (CPI) inflation – the UK Government measure for inflation target - rose to 2.3% in July 2005, the highest rate since the start of the official Figures in 1997.
32 On August 11, 2005 (five months after this section of the paper was written), the oil price reached 65 USD/bl. Concerns of even higher prices transpired as the international community comes at odds with Iran over Iran’s nuclear fuel enrichment program.
Looking back at what happened with previous oil crisis since 1973 onwards\(^{33}\), one can safely conclude that:

- It is important that monetary policies do not accommodate second-round effects of oil price shock otherwise the resulting increase in inflation tends to be included in inflationary expectations thus exacerbating the persistency of the phenomenon and increasing the cost of disinflation. Unlike the US or Japan (and until recently China), the monetary policies in euro area have been less accommodating. As a consequence, the effects of the recent oil price surges most likely will not be conducive to second round effects as long as this is not a lasting phenomenon;
- Accommodating oil price shocks by increasing the public deficit may have similar consequences as an accommodating monetary policy and more so if the fiscal policy is not sound enough to provide automatic stabilizers for such an undertaking. Although some of the Member States in the euro area had a tendency towards increasing the public deficit to support economic growth, the issue is becoming even more relevant for the new Member States where the fiscal policies are yet to be fine tuned;

\(^{33}\) A good review is available in the IMF paper (see Supra Note 20)
Flexibility in labour markets is essential to avoid the wage-price spiral which may prove difficult to tackle in the shock aftermath. This is of particular relevance as at the moment, most of the Member States (including the new Member States) are confronted with social pressure to improve employment and maintain or even increase the level of compensations despite slow progress in labour productivity;

- The impact of an oil price shock on the economic activity depends to a large extent on the country’s ability to handle short-term price volatility which tends to complicate economic management and reduces the efficiency of capital allocation. Therefore, of particular relevance is the degree of transparency with which the central bank (ECB or the national central bank) is able to communicate its short and medium term strategy thus enabling markets to better forecast economic developments. The higher the ability of the markets to foresee the path of economic development, the lower the level of possible distortions and consequently, the more efficient allocation of resources;

- The magnitude of the oil price shock depends also on the general economic background in the run up to the price spike, in other words it does matter whether the country was in a period of an economic boom prior to the shock or in a period of economic depression or somewhere in between, on the way to recovery;

- Last but not least, the magnitude of the oil price hike is also dependent on the ability of the oil importing country to switch to alternative fuels and energy sources. It is becoming evident that the higher the degree of energy self sufficiency of a country, the lower the impact of external shocks induced by oil price spikes.

**Changes in other commodity prices**

One significant impact of the surge in energy prices was the induced increase of the harmonized consumer price index (HICP)\(^{34}\) and the core inflation\(^{35}\) the in the euro area. Figure 4.3 shows that HICP rose above

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\(^{34}\) HICP stands for Harmonised Index of Consumer Prices and it is being used in economic analyses as an indicator for price stability. For the methodological issues concerning the calculation of this index see for instance the ECB Monthly Bulletin – Euro area statistics, Chapter 5 prices, output, demand and labour markets, www.ecb.int

\(^{35}\) Core inflation for the purpose of this thesis should be understood as the consumer price index inflation excluding volatile prices such as food and energy.
2% while the core inflation remained around 2%, with slight increases at the beginning of 2004.

Figure 4.3 The evolution of HICP and core inflation in the euro area (year on year percentage change)

Due to high oil prices, countries in the euro area have experienced an increase in prices for goods and services, in particular administered prices\(^36\) (countries in the euro area being mainly oil importing countries, the rise takes place because of the deterioration of the terms of trade) which also have contributed to a higher inflation rate. The price stability across countries in the euro area differed considerably ranging from sound price stability in Finland to inflation of more than 3% in Greece.

\(^{36}\) Administered items are normally those assets, liabilities, revenues and expenses controlled by the Government and managed or overseen by agencies or authorities on behalf of the government. These items include: expenses from subsidies, grants and benefit payments, revenues from taxes, fees, fines and excise, liabilities related to public debt and assets relating to tax receivables, loans to other governments and investments in controlled entities.
Luxembourg and Spain in May 2004. Table 4.1 below provides a brief overview of commodity price changes from 2002 onwards.

**Table 4.1 International commodity prices, 2002-2004 (annual percentage change)**

<table>
<thead>
<tr>
<th>Items</th>
<th>Weight*</th>
<th>Prices in US $</th>
<th>Prices in €</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food</td>
<td>9.9</td>
<td>12 8.1 22.9</td>
<td>6.1 -9.4</td>
</tr>
<tr>
<td>Industrial raw</td>
<td>22.6</td>
<td>-1.6 17.3 23.1</td>
<td>-6.5 -2.1</td>
</tr>
<tr>
<td>agricultural prod.</td>
<td>10.1</td>
<td>-0.6 21.6 11</td>
<td>-5.8 1.7</td>
</tr>
<tr>
<td>non-ferrous metals</td>
<td>9.1</td>
<td>-4.2 11.9 35.5</td>
<td>-8.8 -6.8</td>
</tr>
<tr>
<td>iron ore, scrap</td>
<td>3.4</td>
<td>2.7 17.9 29.7</td>
<td>-2.6 -1.4</td>
</tr>
<tr>
<td>Non-energy materials</td>
<td>32.5</td>
<td>2.7 14.2 23.1</td>
<td>-2.6 -4.5</td>
</tr>
<tr>
<td>Energy</td>
<td>67.5</td>
<td>-0.4 14.4 50.1</td>
<td>-5.9 -3.9</td>
</tr>
<tr>
<td>crude oil</td>
<td>62.7</td>
<td>1.4 15.4 43.9</td>
<td>-4.1 -3.3</td>
</tr>
<tr>
<td>coal</td>
<td>4.8</td>
<td>-18 5.1 127.6</td>
<td>-22 -12.8</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>0.6 14.4 40.5</td>
<td>-4.8 -4.2</td>
</tr>
</tbody>
</table>

* Weights correspond to the average shares of the various product categories in total OECD commodity imports in 1999-2001

From the Table 4.1 above it is evident that energy prices raised the most among all commodities considered but industrial raw materials and food prices also display a significant increase.

### 4.1.2. Fiscal policies and labour markets and their impact on economic growth: lessons learnt from EU-15

As explained in section 4.1.1 above, changes in fiscal policies could as well trigger a change in the demand and supply of goods and services and may lead to new price developments which could, in effect, have

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165
some impact on the development of the RES-E market in the NMS. It seems therefore appropriate to briefly touch upon the issue of fiscal policies and labour markets in the NMS as they are essential ingredients of a well-functional economy where markets for new products and services (such as ones related to renewable energy technologies) could emerge unhindered. The following discussion focuses more on developments within the euro area rather than within Europe Union as a whole as, with the accession, the new Member States did not obtain any formal derogation from EMU Membership (as it has been previously granted to Denmark, UK and Sweden). Consequently, these countries have the obligation to adopt the euro as national currency sooner or later, provided that they comply with the convergence criteria.

In their quest for a fully functioning internal market, the NMS and the EU-15 will have to walk the path of sustainable monetary and fiscal policies. By joining the ERM II, countries give up their discretionary powers over the monetary policy while further adjustment of national circumstances would fall mainly on the fiscal policies. One consequence of this is that both groups of countries have to find ways to synchronize their economic policies while taking into account national circumstances in the same time.

Analysing the past experience of EU-15 countries with fiscal policies reform, some experts appear to believe that, in short term, fiscal reforms may have indeed some costs and benefits may take time to kick in. In the long run however, a sound fiscal policy (including a cautious public expenditure) may ensure a more sustained pace of economic growth and Ireland could be considered as a prime example. This experience remains indeed relevant to the NMS to the extent that the specific circumstances of these countries (see more detailed discussion in the following sections) as well as the global economic outlook (which differs considerably from the late 1970s and 1980s) are being accounted for.

38 Cyprus, Czech Republic, Denmark, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Sweden and the United Kingdom are members of the EU but are not currently participating in the single currency market.
39 See detailed discussion further in the chapter.
40 Exchange Rate Mechanism
41 This discussion draws heavily on a presentation by Ludger Schuknecht and Vito Tanzi on “Reforming public expenditure in industrialised countries: are there trade-offs?” prepared for the European Commission workshop on “Fiscal policy in EMU: new issues and challenges”, Brussels, 12 November, 2004
With respect to the labour markets in the EU-15, despite the free movement of labour provisions of the EC Treaty, members of the euro area still have independent labour markets with France, Germany, Italy and Spain driving the developments across the region. The relatively high unemployment rate in these countries, reflect not only a sluggish economic recovery but may also reveal some structural deficiencies in the national labour markets. In many of the countries within the Euro area, nominal wages were slow in following the cyclical downturn (e.g. in Belgium, Spain, France and the Netherlands). In particular in Italy nominal wages were slow to adjust to a particularly sharp decrease in labour productivity. Labour productivity, although on the rise, remains somehow sluggish. In Germany and France for instance, part of the reason seems to be insufficient investment in information technology (IT) - which hampers companies from taking stock of flexible supply chains or available - but also inappropriate regulations-such as zoning rules-and sometimes inadequate ownership structures. All these factors corroborated with a relatively high rigidity of the labour market tend to distort the competitive environment and stifle innovation, one of the main drives for a sustainable productivity growth but differences exist across economic sectors. In Portugal, distorted competition, deficiencies in the public sector and rigid labour markets corroborated with a significant share of the informal economy (therefore significant loss in income taxes for the state budget) led to growth stagnation since 1999. Another issue likely to seriously affect in the near future not only the labour markets but also the level of income for the working population and the public budgets is the ever aging population across European countries. By 2025, one in five Europeans will be more than 65 years old, up from only 16% in 2002. In UK, Germany and Italy, household financial wealth will be USD 4 trillion less than it would have been if historical growth rates were maintained. These facts are likely to have serious economic implications including the already strained public budgets and sooner rather than later European countries will have to face hard

46 Ibid 45,
questions such as how to best manage the economic implications of aging population. Although different answers may be needed for different questions, all seem to lead to the same conclusion: key to finding sustainable solutions is a healthy public budget (thus a cautious attitude towards public spending), longer working periods or alternative income sources for senior citizens and an increased involvement of the private sector as it is evident that public sector debt can not grow without limits. Lax fiscal policies can lead to higher interest rates in long term thus crowding out the private sector.

In brief, developments in the labour markets in the EU-15 seemed to have influenced to some extent the economic growth across the euro area. The underlying factors for lower labour productivity and slower than expected economic growth in Europe such as the technological gap, labour market rigidity, public sector deficiencies, persistence of informal economies and unfavourable demographic trends to name a few, will need to be addressed in a concerted manner across the European Union as a whole to ensure a sustainable and well functioning internal market in the years to come.

When it comes to promoting renewable energy, this issue is of particular relevance as it is becoming evident that in the near future European governments will be less able to support subsidies for projects which, by their very nature, are not meant to deliver public goods such as renewable projects47. For the new Member States, this future may be closer than one may think.

4.2. The status quo in the new Member States

As it has been explained in the previous sections, no economy operates in a vacuum. The new Member States are no exception. Being now an integral part of a larger European economy, it is to be expected that events in the global markets and even more so those in the euro area, are likely to have a significant impact on their future economic outlook. On the other hand, it is equally true that the degree to which these

47 Basically the main question to be answered is whether energy, and in particular renewable energy, should continue to be regarded (at least by the end consumer) as more of a public good or should we consider energy, and in particular renewable energy, a private good with benefits for the society at large. The author argues for the later and therefore, in her opinion, private-public partnerships are more adequate when it comes to financing renewable energy projects.
countries will be able to benefit from their competitive advantages and position themselves on the European/global markets will largely depend on their capability to define strategic, long-term objectives and their determination and political willingness to pursue them.

This section aims to highlight some of the challenges NMS will face in short to medium term in their quest for sustainable development, given the lessons learnt and the current situation in the EU-15. With respect to investing in renewable energy sources, the section is relevant as it lays the foundation for the discussion following later in this chapter concerning market risks and for the assumptions used in the modelling exercise. For this reason, the questions addressed in this section will focus on the monetary and fiscal policies in the new Member States as well as other issues that are likely to influence future capital flows in this region in short to medium term such as labour markets.

4.2.1. Monetary and fiscal policies in the new Member States

The discussion about the monetary and fiscal policy developments in the new Member States is inevitably centred on the Stability Pact and the Convergence Criteria as these countries are expected to join the Exchange Rate Mechanism at some point in the future. Art. 4 of the Accession Treaty stipulates that:

“Each of the new Member States shall participate in Economic and Monetary Union from the date of accession as a Member State with derogation within the meaning of the Art.122 of the EC Treaty.”

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48 Although competitive advantage is a rather simple concept, experience shows that sometimes it is surprisingly hard for some to understand it and even more to accept it. The Nobel laureate, Paul Samuelson has once described the concept as the best example of an economic principle that is undeniably true yet not obvious to intelligent people. The basic idea is that a country has a comparative advantage in producing a good (or a service for that matter) if the opportunity cost of producing that good (or providing that service) is lower in that country than it is in other countries. In terms of labour costs for instance, the new Member States have for the time being a competitive advantage in comparison with EU-15 but not in comparison with most of the Asian countries or some Latin American countries.

49 Which for the new Member States is 1 May 2004.

50 For Members that have the status “with derogation” with respect to the participation to EMU, certain articles of the EC Treaty do not apply. See Consolidated version of the Treaty Establishing the European Community, Art 104 (9),(11); Art. 105 (1), (2), (3), (5); Art. 106, Art.110, Art.111, Art.112 (2), (6). Official Journal of the European Communities C 325/33 from 24.12.2002, www.europa.eu.int

169
In other words, the new Member States will have to join the European Monetary Union (EMU) provided that they meet the convergence criteria.

By doing so, the exchange rate mechanism, as a shock absorber, will no longer be available to the Member States. Given the fact that many of the new Member States are still struggling with transition hurdles, it is to be expected that further and maybe larger national adjustment will be needed in short to medium term. Consequently, it seems important that before joining the ERM II – therefore before fixing the exchange rate to the euro- the new Member States proceed to an accurate assessment of their domestic challenges and put in place sound fiscal and monetary policies aiming at price stability and sustainable economic growth given their particular circumstances.

With respect to joining the ERM II, only three out of ten new Member States, namely Estonia, Lithuania and Slovenia, have joined the exchange rate mechanism as of 28 June 2004. Other Member States took a more cautious attitude. For instance officials in Czech Republic and Hungary seem to believe that the two countries may be able to join the EMU only in 2008 (thus adopting the euro as their national currency only in 2010), one year later than has been initially envisaged. Poland also has had a change in language and reformulated its official target date for the euro zone entry from 2007 to “as soon as possible after 2007”. Meantime, Latvia and Slovakia seem to be targeting 2008 as a date for euro zone entry but in both cases there is no official time table yet. All these differences in attitude towards euro zone entry might reflect on one hand different degrees of confidence in countries’ monetary and fiscal policy but may also reveal, like in the case of EU-15, significant differences among the NMS with respect to the stage and the objectives of the economic reform. In order to better understand those differences,

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51 See Supra Note 50, Art.121
52 The effect of the exchange rate as a shock absorber is not quite a clear-cut issue. The usefulness of such a mechanism depends on the type of shock and on the exchange rate. For instance, in case of a sudden drop in domestic demand, a flexible exchange rate could cause depreciation which will “crowd in” additional demand. On the other hand exchange rate adjustment as a response to monetary and financial shocks may create undesirable changes in relative prices. For a good discussion on this issue see for instance A. Borghijs and L. Kuijs, “Exchange rates in Central and Eastern Europe: a blessing or a curse?”, IMF working paper WP/04/2, January 2004.
a quick overview of countries’ performance vis à vis the convergence criteria is provided below.\textsuperscript{55}

\textbf{Price stability criteria}

“the achievement of a high degree of price stability; a Member State has a price performance that is sustainable and an average rate of inflation, observed over a period of one year before the examination, that does not exceed by more than 1½ percentage points that of, at most, the three best performing Member States in terms of price stability. Inflation shall be measured by means of the consumer price index on a comparable basis, taking into account differences in national definitions.”

Over the 12 months reference period covered by the ECB Convergence Report and ending in August 2004, the reference value of inflation was set at 2.4\textsuperscript{\textsuperscript{56}}. Four out of ten new Member States had an average HICP below the reference value, namely Czech Republic, Cyprus, Estonia and Lithuania. Poland and Malta were slightly above the reference value with HICP inflation of 2.5\% and 2.6\% respectively while Slovenia, Latvia, Hungary and Slovakia were considerably above the reference value with HICP inflation of 4.1\%, 4.9\%, 6.5\% and 8.4\% respectively. While monetary policies appear to be in line with the main objective of the monetary policy in the euro area - that is price stability – various approaches to fiscal and wage policies seem to have been the culprit for such developments concerning the HICP inflation.

In addition international commodity price developments, in particular oil prices, supply shocks and changes in tax regimes and administered prices as a result of accession process took their toll on the HICP inflation as well. While these effects could be only temporary, the main risks in medium term, as identified by the ECB, remain the second-round effects of commodity prices increases (the wage spiral) given the fact that some of the Member States did not complete the disinflation process and fiscal and wage policies do not seem to be supportive to price stability.


\textsuperscript{56} The value was calculated by adding 1.5\% to the unweighted arithmetic average of the rate of HICP inflation in three best performing Member States, namely Finland (0.4\%), Denmark (1\%) and Sweden (1.3\%).
**Government budgetary position**

“the sustainability of the government financial position; this will be apparent from having achieved a government budgetary position without a deficit that is excessive as determined in accordance with Article 104(6); more explicitly, the ratio of the planned or actual government deficit to GDP should not exceed 3% of GDP and the ratio of government debt to GDP should not exceed 60% of GDP”

Out of ten new Member States, in 2003 six countries are exceeding the public deficit threshold, namely Czech Republic, Cyprus, Hungary, Malta, Poland and Slovakia while three countries –Latvia, Lithuania and Slovenia- performed rather well by maintaining the public deficit below 3 percent of GDP. Estonia registered a fiscal surplus. With regard to governmental debt, in 2003 Cyprus and Malta exhibited ratios above the threshold with Cyprus having a debt ratio of 70.9 percent and Malta 71.1 percent. All other new Member States seemed to have kept the debt ratio in check. However, it appears that apart from Cyprus and Malta, in Czech Republic, Hungary and Poland, keeping the current general and primary deficit ratio would not be sufficient to reduce the debt ratio. Consequently, there is a risk for this ratio to rise above the 60 percent threshold in short period of time.

**The exchange rate criteria**

“the observance of the normal fluctuation margins provided for by the exchange-rate mechanism of the European Monetary System; according to this criterion, a Member State can participate in the ERM II if it has respected the normal fluctuation margins provided for by the exchange rate mechanism of the European Monetary System without severe tensions for at least the last two years before the examination. In particular, the Member State shall not have devalued its currency’s bilateral central rate against any other Member State’s currency on its own initiative for the same period.”

Most of the new Member States experienced a weakening of their national currencies vis-à-vis the Euro in 2003 and a slight upturn in 2004. However, the causes for this development appear to be quite different across countries. For example, while in Hungary and Poland developments concerning the local currency had been mainly related to the uncertainty surrounding the monetary and fiscal policies and large
deficits in the current account, in Latvia and Malta the main factor appears to be related to their exchange rate regimes (basically the basket of currencies their national currency is pegged to).

In overall, the main pattern remains a relatively high volatility of the exchange rates of local currencies versus the euro and, in some cases, higher short term interest rates than the euro zone area\textsuperscript{57}.

**Long-term interest rates criteria**

"the durability of convergence achieved by the Member State and of its participation in the exchange-rate mechanism of the European Monetary System being reflected in the long-term interest-rate levels; according to this criterion, observed over a period of one year before the examination, a Member State has had an average nominal long-term interest rate that does not exceed by more than 2 percentage points that of, at most, the three best performing Member States in terms of price stability. Interest rates shall be measured on the basis of long-term government bonds or comparable securities, taking into account differences in national definitions."

The reference value for the 12 months reference period was 6.4\%\textsuperscript{58}. In 2002, seven out of ten Member States displayed long term interest rates below the reference value while Hungary and Poland exhibited long term interest rates above the reference value, with 8.1\% and 6.9\% respectively. Estonia does not have governmental bonds and consequently it was not possible to determine the degree of convergence at the time the ECB Report was written. This development in general reflected an increase of market confidence in the monetary and fiscal policies mainly fuelled by the expectations that by joining the European Union, countries will embark on a consolidation process that would improve market fundamentals. However, the trend somehow reversed in 2003 and 2004. Long-term interest rates in a number of countries raised above the reference value reflecting the occurrence of inflationary pressures as it was the case for instance in Latvia, Slovakia and Malta. In Cyprus the long-term term interest rate rose significantly by mid 2004

\textsuperscript{57} This may attract unwanted short-term capital in these countries.

\textsuperscript{58} The reference value was calculated by adding 2\% to the unweighted arithmetic average of the long term interest rates in the three best performing Member States, namely Finland (4.2\%), Denmark (4.4\%) and Sweden (4.7\%).
due to political uncertainty, while in Czech Republic, Hungary and Poland the divergence of long-term interest rates from the euro zone level took place mainly because of high uncertainties concerning the fiscal and monetary policy. Only two countries, namely Lithuania and Slovenia stood the course by adopting sound monetary and fiscal policies but also due to market expectations related to the participation of these countries in the ERM II.

In a nutshell, the new Member States have made tremendous efforts to create a stable investment climate in recent years. Most of these countries started the transition process more than a decade ago with an almost inexistent financial sector as it is known in developed countries today. With the accession process, the NMS have come a long way in building the necessary legal and institutional framework crucial for a financial sector ready to stand the pressure of modern economy.

However, the realities these are countries are facing today are quite different from the ones the EU-15 faced after the Second World War. The modern economy that we see emerging today is fundamentally different from the past global economy that relied solely on the movement of manufactured goods and raw materials. Bilateral relationships are being replaced as we speak with network-based relationships. This important transformation will most likely have a significant impact on small, open economies as many of the NMS are. In this context and with a transition process still on going, the NMS are likely to face domestic challenges that may put some governments between a rock and a hard place.

An example of how difficult it may be to set monetary and fiscal policies that are, on one hand, in line with the ERM II rules but on the other takes into account domestic realities is provided by Hungary (see Box 4.1).

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59 Around the time of unification negotiations which eventually failed.
In general, countries have various options in achieving the stability of their exchange rate. Two of those, namely a fixed exchange rate with a major world currency such as Euro or the US dollar and a free floating exchange rate, are known as corner solutions. Every other regime such as a currency board (basically a peg to a basket of currencies), managed floating exchange rate regime and variations of a peg regime are considered intermediary solutions. Although many economists may argue that interim regimes [1] are not the most fortunate choice for emerging markets, Hungary did manage to escape unscathed from the Asian crisis in 1997 as well as the Russian crisis in 1998. As the accession process advanced, the appreciation of the real exchange rate became inevitable [2] so by the end of 1999, inflation stagnated at about 10%. A new Act concerning the operation of the Central Bank was adopted in 2001, with the stated aim of achieving and maintaining price stability, in line with the ERM II objective. The intervention band widened from ±2¼% to a more flexible ±15% while restrictions on short-term capital have been maintained. The new system performed rather well for a while. The CPI inflation went down from 10% to 3.6% in May 2003 [3]. However, by January 2004, due to high exchange rate volatility, the Hungarian currency came under speculative attack [4] and the Central Bank had to intervene in the Forex market and buy €5M to prevent the exchange rate to appreciate too much. The intervention in the monetary policy had much higher impact than initially desired. The nominal depreciation of the currency was higher than expected by the markets. Consequently, the long-term investors became confused by the real intentions of the Hungarian economic policy which led to a significant increase in the cost of financing (the risk premium). Ever since, the National Bank of Hungary is facing the daunting task to restore market confidence. The real wages increased by 10% for two subsequent years. The budget deficit remains well above the 3% target and the debt ratio is getting close to 60 percent of GDP while the exchange rate volatility increased. As a result, two subsequent pre-accession programmes have been scraped before the European Commission had even the chance to read them. According to Mr. Riecke, the former president of the Hungarian National Bank, it seems that “previous serious commitments of Hungary to ERM II and euro zone entry are now being reconsidered.”

[1] In general, countries have various options in achieving the stability of their exchange rate. Two of those, namely a fixed exchange rate with a major world currency such as Euro or the US dollar and a free floating exchange rate, are known as corner solutions. Every other regime such as a currency board (basically a peg to a basket of currencies), managed floating exchange rate regime and variations of a peg regime are considered intermediary solutions. Although there is no empirical evidence that the success or failure of a monetary policy can be solely attributed to the exchange rate regime, many economists seem to believe that in the case of emerging markets it is not recommended to adopt intermediary regimes. Others go even further with suggesting that a free floating exchange rate regime would not be appropriate either. For a good discussion on these issues see R. Mundell and Paul Zak (Ed). Monetary Stability and Economic Growth: A dialog between leading economists.


Similar developments took place in other new Member States. In Slovakia for instance, where the smooth completion of the accession process induced a higher investor confidence, the Central Bank reduced the basic interest rate by 1½ percentage points to 4.5%. This prompted a strong appreciation of the national currency triggered by a massive short-term capital which threatened the country’s competitiveness and triggered the Central Bank’s intervention in the forex market. Latvia also recently increased its refinancing interest rate to address possible inflationary pressures arising from a rapidly growing economy. Latvia was followed in June 2004 by Czech Republic and Poland who also raised their key interest rates to address inflationary pressures in their domestic markets.

One important lesson that can be learnt is that it may happen that in short to medium term, the current economic/monetary policy required in the new Member States to remedy internal and external disequilibria may conflict with the policy that would be considered in line with the overall ERM II goal to maintain price stability. In addition it is crucial that there is a good, transparent communication between the government and the central bank so that monetary policies could be successfully factored into medium term governmental strategies for sustainable development. When adopting new rules for monetary policies, the related regulations should follow suit to accommodate the new roles of the Central Bank (as well as for the Government for that matter). This is very much in line with empirical evidence known to economists as the impossible trinity. Most economists seem to agree

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41 Which may translate, among others, into an inflation rate higher than the one specified in the Maastricht criteria. This is likely to be the case especially if the three best performing countries will have an inflation close to zero and therefore the reference will be set too low.

62 In Hungary, until the end of 2003, the policy of the National Bank of Hungary—which had its own inflation target—was never properly endorsed by the government. One consequence of that was that it has never made its way into the medium-term governmental economic policy. See Supra Note 65. On the importance of transparency in communicating the monetary policy see also M. Jarmuzek, L. T. Orłowski and A. Radzwill, “Monetary Policy Transparency in Inflation Targeting Countries: the Czech Republic, Hungary and Poland”, Center for Social and Economic Research, Research Paper No. 281, Warsaw, June 2004.
that in emerging markets, there are three things that one can not combine when it comes to monetary policies and exchange rate regimes. These three things are: independent monetary policy, capital mobility (no capital controls) and pegged exchange rates. And this is indeed one of the dilemmas governments in some of the new Member States will have to face in short to medium term.

4.2.2. Labour markets in the new Member States

As it has been outlined in previous sections, labour markets are the fulcrum for economic growth. For the new Member States, the task to maintain the equilibrium in these markets may prove quite a daunting one in short to medium term.

The economic and social reforms undertaken during the transition period have altered irreversibly the labour market landscape in the new Member States. The expansion in scope and size of the service sector together with major restructuring processes taking place in industry, particularly in the energy sector, have produced on one hand opportunities for job creation but also resulted in high rates of redundancy. In short to medium term, all these structural changes will continue to have an impact on these countries' economy.

Economic uncertainty and the pressure to reduce production costs resulting from the political and economic changes after 1989 as well as external and internal shocks-such as the break-up of the Council for Mutual Economic Assistance, break-up of the Soviet Union coupled with internal macroeconomic austerity, significant distortions in the relationships between national enterprises and sharp increases in the cost of energy and other primary inputs - diminished the capacity (and willingness) of many entrepreneurs to hire new labour and led to significant lay-offs. The job loss was determined by the decline in economic output while employment depended heavily on the level of subsidies available to ailing enterprises. Employment losses were particularly high in the first years of transition when countries registered huge declines in economic output and slowed down somehow as countries resumed economic activity during mid 1990s. Despite the high growth rates many of these countries have experienced in the last couple

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63 For a good discussion on the issue see the comment of Roberto Salinas during the Bologna-Claremont Conference on International Monetary System, 1999, in Monetary stability and economic growth, a dialog between leading economists, pg.65
of years, unemployment (in particular long-term) continues to remain relatively high. This may happen for few reasons. Due to past outdated production means employed by much of the industry (and agricultural sector) at the time, during the transition process there was significant scope for improving labour productivity without hiring new staff. In addition, enterprises proceeded to significant costs cuts (inclusive labour costs) and investments in new technologies in order to stay competitive as new Member States opened up their markets. Finally, skill mismatch and a rise in income distribution disparities are likely to trouble the labour markets in some years to come. In a nutshell, although unemployment rates across the new Member States may have different explanations, all new Member States seem to have few things in common when it comes to labour markets: high share of long term unemployment in the total unemployment rate, high share of unemployment among young people (particularly in Poland and to some extent in Lithuania and Slovenia) and high regional disparities both in income levels and unemployment and low mobility due to poor infrastructure and housing opportunities.

Given the shortage in public finances, current demographic trends and sharp market competition, the NMS are likely to encounter some challenges in matching the new job opportunities created as a result of economic and social reform with the job shortfall incurred due to the very same reason. Renewable energy sector could offer a tremendous opportunity in developing new business fields and creating new jobs, in particular in the Small and Medium Enterprise (SME) sector. Probably one of the most illustrative is the case of Germany as presented below.

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64 B.Galgoczi, “Job mobility in Europe”, presentation to the workshop on Social aspects of an expanded European labour market and increasing mobility, 17-20 June 2004, Dublin.
65 This could be a sign of social exclusion but equally may reflect the presence of the informal economy.
66 Less than 25 years old.
67 The case study draws significantly on the findings from the PREDAC project. For details see CLER, IDEC, ENEA, “New jobs in the field of renewable energy and rational use of energy in the European Union: Examples in Germany, France, Greece and Italy”, presentation delivered in Montreuil, July 11, 2003; presentation available at http://www.cler.org/predac/IMG/pdf.
Renewable energy sector and job creation in Germany

Due to a long-term commitment of the government, Germany became one of the leading countries in promoting renewable energy. Today, the renewable energy sector in Germany is a market that generates an annual sales volume of approx. €8billion68 and some 120000 permanent jobs69. The new market generated new business opportunities, in particular in the SME sector and high demand for a very diverse set of qualifications as Table 4.2 below shows.

Table 4.2 Examples of renewable jobs generated in Germany

<table>
<thead>
<tr>
<th>Branch</th>
<th>Main responsibilities</th>
<th>New business field</th>
<th>Jobs offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offices for wind planning</td>
<td>Market research &amp; site acquisition, turn-key delivery of finished parks, project finance, legal advice</td>
<td>Research, Negotiation skills, Identification of investors and shareholders, Technical and legal planning of the wind park, Surveillance of the wind park construction, Exploitation or selling the finished parks</td>
<td>Project developers, Lawyers or legal assistants, Financial experts, General staff (admin, accounting, management, others)</td>
</tr>
<tr>
<td>Weather survey and environmental impact survey</td>
<td>Resource and weather specific data gathering and processing Environmental impact assessment</td>
<td>On-site measurements, Data processing, Spatial planning, Environmental Impact Assessment, Climate change expertise (emissions data)</td>
<td>Spatial planners, Scientific advisors (meteorology, geology, biology, statistics, etc), Surveyors, experts, General staff</td>
</tr>
<tr>
<td>Energy</td>
<td>Establishing</td>
<td>Fund raising</td>
<td>Bankers</td>
</tr>
</tbody>
</table>

68 See Supra Note 67; the figure might include bio-fuels and heating market,
<table>
<thead>
<tr>
<th>Industry</th>
<th>Function</th>
<th>Roles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Finance service providers and bond brokers</strong></td>
<td>Innovative financing schemes with large participation from the general public</td>
<td>Contract negotiation, Project acquisition, Market surveys, Organisation of local investment bonds, Financial and economic consultancy, Bond issuance</td>
</tr>
<tr>
<td><strong>Technology manufacturing</strong></td>
<td>Production of solar panels, wind turbines</td>
<td>Production, Marketing, R&amp;D, Sales manager, Production manager, Technicians, Financial and legal experts, Human resource management</td>
</tr>
<tr>
<td><strong>Green electricity producers and suppliers</strong></td>
<td>Purchase and sale of green electricity</td>
<td>Purchase and sales, Load profile management, Site exploitation, Advertising, Client service, Sales personnel, Electrical engineers, General staff</td>
</tr>
<tr>
<td><strong>O&amp;M service providers</strong></td>
<td>Operation and maintenance</td>
<td>Technical maintenance, Repair/manage spare parts replacement, Emergency service, Remote monitoring of the installation performance, Technicians, General staff</td>
</tr>
<tr>
<td><strong>Project management and auditing</strong></td>
<td>Management</td>
<td>Renewable energy consulting, Market surveys, Project structuring, Financial modelling and project finance consulting, Risk management, Due diligence, Model audit, Consultants, RE market specialists, Project managers, Economic and financial expertise, General staff</td>
</tr>
</tbody>
</table>
4.2.3. New Member States: between a rock and a hard place

After more than a decade of transition, the new Member States took their rightful place in the European Union. They have made remarkable efforts to bring about fundamental transformations in the economy and the society at large that have irreversibly changed the mind-set in this region. By participating in a common market, and even more so in a monetary union, NMS are likely to enjoy in long run, greater economic stability and lower costs due to diminished transaction costs and costs related to foreign exchange. In short to medium term however, much remains to be done and many questions to be answered to.

With respect to the monetary and fiscal policy, in short to medium term, these countries may need to slightly deviate from the Maastricht criteria to address domestic priorities, especially concerning the level of inflation. High differences in short-term interest rates vis à vis the euro zone are an invitation for short-term capital inflows which, under certain circumstances, may prove a hindrance in diminishing the exchange rate volatility against the euro\(^70\). If European countries remain committed to address economic issues in a concerted manner, in long run, the convergence among business cycles of EU-15 and NMS will probably be sufficient to minimize the risk for countries to be affected differently by future economic shocks. In short to medium term however, the business cycles of some NMS (with the exception of Malta and Cyprus), remain intrinsically correlated among themselves\(^71\) and therefore they tend to

\(^{70}\) It might be useful to observe for instance the short term capital inflows intermediated through banks vis à vis the level of reserves and the currency in which these are denominated. This would give a good indication which countries may face problems with exchange rate volatility. There are different ways of tackling the short-term capital flows. A well known method is the so called Tobin tax which is a tax on exchange rate transactions. The tax is meant to discourage speculative transactions in the forex markets and revenues are normally pooled in a fund used to finance environmental and other socially responsible projects. The difficulty in implementing such a mechanism however lies in the fact that it requires an international agreement. Switzerland had a different approach. Many years ago, Switzerland started to pay very low interest rates for transitory balances. Chile, back in the 80s, introduced a 3% tax on short term capital inflows which discouraged volatility of short term capital but did not affect capital inflows in general, in particular long-term. See also L. Lipschitz, T. Lane and A. Mourmouras, “Capital flows to transition economies: Master or Servant”, IMF, August 2001, www.imf.org.

\(^{71}\) For instance Czech exports to Slovakia, Hungary, Poland and Russia accounted in 1997 about 10% of GDP as opposed to 1.5% in Germany or 0.9% of the whole European Union to the same countries. See M. Cincibuch and D.Vavra, “Towards the EMU: a need for exchange rate flexibility?”, July 2000, Institute for advanced studies Vienna, pg. 11. Some experts also believe that higher integration (therefore business cycle synchronisation), would reduce the shock asymmetry among EU Member States. See for instance, Babetskii, J., “EU Enlargement and Endogeneity of some OCA Criteria: 181
remain more vulnerable to shocks (such as rising oil prices) than the EU-15. In addition, the new EU-10 may still be subject to asymmetric shocks given traditional links (such as the Baltics with Russia and Nordic countries, Czech Republic with Russia and Central Europe, etc). Public debts and deficits should be kept in check to allow NMS to accommodate domestic situation in the labour markets and given the estimated relatively high level of contingent liabilities (resulting from past State guarantees granted in particular to energy projects but also future pension payments).

Like in the EU-15, the labour market remains crucial for the future economic development and the NMS may need to focus on increasing labour productivity and capacity utilisation in order to avoid the wage spiral which remains a significant risk in the region. For the EU-10 governments and their social partners, the focus should shift, in the author's opinion, from increasing the wage level for people that are already employed to job creation. In this context, fighting income disparities, increasing labour mobility and diminishing the share of informal economy\textsuperscript{72} should be listed among priorities. With respect to renewable technology, it is very unlikely, in the author's opinion, that large scale deployment can take place in the absence of an enabling labour market. In particular, the author believes that the NMS should focus on promoting R&D, support local manufacturing of various renewable technologies and improve skills in sustainable agricultural practices, financial and legal fields (particularly geared toward environmental aspects), areas which were not as rooted in these countries’ educational tradition as technical training is for example. With respect to R&D, this is a particular crucial aspect of the issue. It is already well-known to economists that private firms tend to limit their investment in R&D because of knowledge spillover effects\textsuperscript{73}. To correct

\textit{Evidence from the CEECs\textsuperscript{74}}

\textsuperscript{72} There seem to be no consensus on the definition of the informal economy. One such possible definition can be found in F.Schneider: “\textit{[the informal economy encompasses] all currently unregistered economic activities which contribute to the officially calculated (observed) Gross National Product}”. For details see F.Schneider, “\textit{Size and measurement of the informal economy in 110 countries around the world}”, World Bank, July 2002, www.worldbank.org. For a recent survey see also P.Remoy, S.Ivarsson, van der Wusten-Gritsai, E.Meijer,”\textit{Undeclared work in an enlarged European Union; an in-depth study of specific items}”, European Commission, DG Employment and Social Affairs, May 2004, www.europa.eu.int.

\textsuperscript{73} A good discussion can be found in S. Smulders, “\textit{International capital market integration; implications for convergence, growth and welfare}”, IEEP (2004), 1:173-194. Smulders focuses on analysing the closure of productivity, growth and welfare gap between rich and poor countries due to...
partly this rather undesired externality it is therefore important that NMS develop RES public knowledge markets capable to deliver accurate and timely information to all stakeholders.

To conclude, given their characteristics such as a local energy source, modular in structure that can be easily replicated, etc, and the excellent growth prospects for this industry, renewable energy projects may offer a unique opportunity for governments, business and the general public to find a common denominator and therefore act together in achieving sustainable development goals such as reducing income disparities and environmental benefits to name a few.

4.3. Investing in renewable energy sources: a comparative analysis between the new Member States and the EU-15.

Based on the experience in the EU-15 Member States so far, investing in renewable energy sources does not appear to be a smooth enterprise. Despite mounting concerns over environmental protection - in particular climate change - and security of energy supply which gave rise to the necessity of seeking alternative ways to produce and consume energy, the novelty of the renewable energy technologies (therefore relatively limited understanding of their full costs and benefits) coupled with inadequate regulatory and institutional framework, caused markets, governments and the general public alike to respond with some reluctance to their deployment in Europe. Fortunately, a series of policy initiatives at the EU level (see discussion in Chapter three) created a more favourable climate for such investments to take place in recent years and this is why today, a wealth of information, experience and financing opportunities are already available to renewable energy sources stakeholders. Hopefully, this status quo will pave the way for a more rapid and balanced deployment of such sources in the EU-10. However, the mere availability of various mechanisms and information sources on its own is insufficient to ensure that the NMS will meet their RES-E targets by 2010. The deployment of renewable energy sources in this region is likely to be severely constrained by a number of factors

R&D capital and capital markets integration. The model presented is particularly interesting as it reflects the situation of EU-15 and EU-10 countries. An interesting conclusion of the paper is that in long-term, the convergence between the two countries (rich and poor) can be stimulated by policies that improve the national innovation system. The effect of capital markets integration depends on the initial structural differences between the two countries but also by the level of adjustment costs and borrowing constraints in particular in the poor country (on this aspect see relevant discussion in section 4.4.2 in this chapter).
including availability of cheap local primary energy sources (including subsidised imported natural gas), existence of competitive nuclear power capacity, lack of public awareness on the full benefits of renewable energy sources and all these projected on a background of national economies still in the process of adaptation as a result of EU accession. Hence, the success (and the pace) of RES-E deployment in the NMS will highly depend on how investors, governments and the general public together will understand to pool their resources, knowledge and willpower to achieve not only ambitious targets but sustainable development goals in long term, given national/regional specific circumstances.

This section aims to shed some light on the market conditions in the EU-10. More specifically, the section addresses the question on what are the risks associated with investments in RES in the new Member States in comparison with the EU-15. For the sake of consistency, the analysis will be based on an analytical framework as it has been developed for EU-15 in previous work with the ADMIRE-REBUS model but differences and/or alterations will be emphasized where necessary. Consequently, in this section some general concepts such as project lead times and transaction costs are discussed - as they are likely to have a significant impact on investment decisions - followed by a detailed analysis of specific risk factors and their potential effect on the project revenue.

4.3.1. RES-E market: lead-times, transaction costs and risk factors; a comparative analysis between EU-15 and the new Member States

Markets, as some economists define them, are "a form of organisation of the economy in which decisions on resource allocation are left to the independent individual producers and consumers acting on their own

74 For a history of the ADMIRE-REBUS model. http://www.admire-rebus.net/
75 For instance, for the new Member States some discussion will be provided to distinguish between two types of investors (short-term versus strategic investors), discussion which has not been made within the work carried out for the EU-15 Member States. Other differences/alterations will be mentioned in due time as the discussion advances.
76 In this thesis, the discussion will be limited to explaining what it is understood by project lead times and transaction costs in the ADMIRE-REBUS framework and a very brief overview of potential differences between the reasoning behind these factors in EU-15 and EU-10. A similar detailed analysis as it has been conducted by ECN for the EU-15 is beyond the scope of this paper and was not possible given the time and resources constraints. Further research may be needed for an adequate understanding of the situation in the new Member States.
best interests without a central direction”\textsuperscript{77}. The concept dates as far back as the 18\textsuperscript{th} century when Adam Smith, the father of modern economics, was arguing that the economic behaviour is primarily guided by the fundamental force of self-interest\textsuperscript{78}. In other words, order would result if individuals were left on their own devices and markets – so defined – can be considered a fine way to pursue the economic well-being of the society as a whole. In this ideal case, firms and individuals, motivated exclusively by the profit or self-interest, allocate resources in the most efficient way.

Over time, markets indeed proved innovative, responsive, resourceful and set in motion by highly motivated agents but for many reasons, i.e. lack of political vigilance or information asymmetry among various interest groups to name a few, markets turned out less than perfect. It is actually because they are so imperfect that investment opportunities exist\textsuperscript{79}. Markets do seem to allocate resources efficiently, however only in short term. But when it comes to allocating natural resources (a public good), as it is the case with the energy sector, short term is not what stakeholder groups (businesses, governments and the society at large) should have in mind.

In the case of renewable energy sources, this interaction between governments, the business community and the society at large surfaces maybe even more as both, the RES-E related business and politics are, after all, a local affair and many of the risks associated with the RES-E investments could be diminished if this interaction were to happen smoothly as it will be discussed in the following few sections.

\textbf{Project lead-times}

In the ADMIRE-REBUS framework, an investment spans over three main phases: the planning phase, the construction and commissioning phase and the production phase\textsuperscript{80}. In the first two phases, the project does not yield any revenues but it does incur costs and most of the uncertainties associated with a possibility of project failure or delayed implementation

\textsuperscript{77} W. Baumol and A. Blinder, \textit{Economics: principles and policies}, pg.45
\textsuperscript{78} The well-known concept of the invisible-hand. See A. Smith, \textit{The Wealth of Nations}.
\textsuperscript{79} The concept of arbitrage.
are also higher in these first two phases. The time lag between the moment the project idea is defined and first inquiries concerning the project start to the moment when the project starts operating\(^8\) it is considered in the ADMIRE-REBUS analytical framework as the project lead time\(^9\).

As different technologies have different characteristics, require different estimations and fall under different regulations, it is to be expected that project lead times will differ as well. In the ADMIRE-REBUS model, a qualitative survey in the EU-15 has been conducted based on which the following lead times have been estimated for various RES technologies:

**Table 4.3 Overall average project lead times in EU-15, per RES technology (in years)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Wind-onshore</th>
<th>SHP</th>
<th>Biomass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>2</td>
<td>2</td>
<td>Less than 1 year</td>
</tr>
<tr>
<td>Belgium</td>
<td>2.5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Denmark</td>
<td>2.5</td>
<td>n.a</td>
<td>2</td>
</tr>
<tr>
<td>France</td>
<td>3.5</td>
<td>5.5</td>
<td>3.5</td>
</tr>
<tr>
<td>Finland</td>
<td>n.a</td>
<td>n.a</td>
<td>n.a</td>
</tr>
<tr>
<td>Germany</td>
<td>2</td>
<td>2</td>
<td>Over 1 year</td>
</tr>
<tr>
<td>Great Britain</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Greece</td>
<td>4.5</td>
<td>5.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Italy</td>
<td>3.5</td>
<td>4.5</td>
<td>3.5</td>
</tr>
<tr>
<td>Ireland</td>
<td>1.5</td>
<td>2</td>
<td>n.a</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>2.5</td>
<td>n.a</td>
<td>1</td>
</tr>
<tr>
<td>Netherlands</td>
<td>2.5</td>
<td>3.5</td>
<td>2.5</td>
</tr>
<tr>
<td>Portugal</td>
<td>n.a</td>
<td>7</td>
<td>n.a</td>
</tr>
<tr>
<td>Spain</td>
<td>3</td>
<td>6</td>
<td>n.a</td>
</tr>
<tr>
<td>Sweden</td>
<td>n.a</td>
<td>n.a</td>
<td>3</td>
</tr>
</tbody>
</table>

**Source:** ECN (2003)

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\(^8\) It is important to notice the word “operating”. The moment when the project starts operating is not equivalent to the moment when the project starts generating revenues.

\(^9\) Due to space constraints, it is not possible to develop here a more detailed discussion on various stages of the planning and construction/contracting phases but these issues are well presented in the ECN report (See Supra Note 80).
As Table 4.3 shows, overall lead times per technology can vary significantly among countries\textsuperscript{83}. For instance, for wind on-shore, spatial planning requirements (or lack of them at local level) may trigger significant delays in project implementation (e.g. in some parts of France, Denmark, Netherlands and Luxembourg)\textsuperscript{84}. Clashes with national defence policies seemed to have surfaced in Great Britain\textsuperscript{85}. Poor coordination among responsible authorities in the approval cycle and lack of transparency has been perceived as an obstacle in Italy and Spain and requirements for a significant amount of additional documentation seem to be a burden in most of the EU-15. Finally, wind-onshore project lead times seem to be affected in countries where there are no clear rules concerning grid connection and grid strengthening costs while in countries like Spain and Great Britain opposition from local communities may trigger considerable delays in project implementation. Small hydro projects tend to suffer from similar administrative problems such as high amount of documentation and permits required, grid connection issues and local opposition due to the impact the project may have on the scenery, noise pollution and fishery. In addition, specific problems such as competitive water usages and complex administrative procedures at local level that involve land ownership issues have been also revealed in some EU-15 countries. Biomass projects can be a very complex undertaking and procedures differ depending on whether it is about processing organic biomass or waste. There is a wide range of issues related to biomass projects starting from the resources assessment\textsuperscript{86}, special regulations concerning the use of agricultural land and transport to specific emission control regulations and boiler standards for waste projects. Because it was beyond the scope of this thesis to undertake a similar qualitative survey for the EU-10 as it has been conducted for the EU-15

\textsuperscript{83} Also for a good overview of land, environmental and energy planning activities undertaken in the EU-15 with regard to RES implementation see ENER-IURE project report on „Stock-taking and analysis of the present technical and legal situation of renewable energy sources in Europe”, Phase III, Final report, 30 June 2002, www.europa.eu.int. 
\textsuperscript{84} See Supra Note 80. 
\textsuperscript{85} See Supra Note 80. 
\textsuperscript{86} An important issue to be taken into consideration in the case of biomass projects, in particular organic biomass, is to ensure the fuel supply all year round. In the UK, some projects have failed because of inadequate assessment of the fuel supply. In addition, new EU regulations concerning the use of biofuels will probably require a revision of agricultural policies in most EU Member States.
within the ADMIRE-REBUS framework, details on technology-specific project lead times are not available at this time. However, a more general analysis of where the differences may be between the two groups of countries is possible and it is presented below.

To better understand the situation in the NMS, it is also important that we further divide lead times into technical-economic lead time and administrative lead time.

The technical-economic lead time concerns the project preparation phase (including financial closure) while the administrative lead time refers to the phase in which the project developers check all the relevant legislation and acquire all necessary permits, e.g. energy law (permit to exploit, connection to the grid, sometimes a contract with the national electricity company), land law (building permit), environmental law (rivers, landscapes, emissions, forests, etc). These two phases are not entirely subsequent (certain activities can be conducted in parallel) but it is important to make a distinction between the two as differences among the two groups of countries (EU-15 and NMS) arise in both phases.

During the technical-economic lead-time, in the NMS, the investor may need to invest a higher amount of time (and other resources) in the project preparation phase, unlike in the EU-15. This is due to several factors. The factors most commonly mentioned within investor community include: insufficient knowledge and/or resources of local project developers to identify and prepare bankable projects and the high turnover of the human resource base in local municipalities which may cause further delays in the project preparation (as new staff would need some time to receive appropriate training).

During the technical-economic lead-time, in the NMS, the investor may need to invest a higher amount of time (and other resources) in the project preparation phase, unlike in the EU-15. This is due to several factors. The factors most commonly mentioned within investor community include: insufficient knowledge and/or resources of local project developers to identify and prepare bankable projects and the high turnover of the human resource base in local municipalities which may cause further delays in the project preparation (as new staff would need some time to receive appropriate training).

In the author’s opinion, the absence of a coherent routine in local energy planning exercise (and hence lack of capacity, lack of compulsory requirements for the local authorities to actively engage in such

87 Although the region benefits from highly skilled professionals, the experts involved in developing this kind of projects tend to focus more on technical aspects than on market issues. Therefore, the foreign investor is usually instrumental in filling this particular gap. This is also an area where, in the author’s opinion, future capacity building efforts should be directed to.

88 In the new Member States it is quite often the case that if there are any changes in top political positions within the local municipalities, part of the technical staff may also change. So if the investor has invested a lot of time and financial resources to train local personnel, if these changes take place within the project preparation phase, the training benefit is lost and the investor has to start from scratch. Although part of these costs may be recovered later on in various forms by the investor, experience shows that in overall, the project lead time (and the transaction costs) tend to be higher in the EU-10 because of problems encountered at local level.
undertaking and lack of accurate data on demand forecasts and alternative planning scenarios) is also one important reason why project pipelines take longer time to identify and develop in the NMS.

Concerning the administrative lead-time, like in the EU-15, grid connection is likely to remain an issue in short to medium term because of various reasons. As reform in the energy sector has been relatively slow (see discussion in Chapter three), the NMS are still to fine tune their energy policies and even more so, to put in place adequate mechanisms to implement them. Guaranteed access to the grid remains in some countries to be put in practice (like for instance in Hungary) while in others is still unclear what are the responsibilities of the independent RES producers with respect to covering the costs for grid connection and grid strengthening (this is for instance the case in Czech Republic, Estonia, Poland and Slovenia). Finally, the NMS will have to adapt to the new network requirements recommended by UCTE therefore it is possible that higher technical standards will be imposed to independent grid-connected RES-E producers.

Like in the EU-15, the multitude of separate procedures needed to authorise the operation of renewable energy generation facilities is resource consuming. For instance in Hungary, 28 different authorisations are needed while in Slovenia about 15 different authorities are involved in the approval process. As renewable energy sources are gaining a higher priority on the regulators’ agenda, national guidelines are being developed but in short to medium term it may happen that they are not

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89 It is particularly important to recognize the necessity to have local energy plans well communicated at national level. Especially when grid-connected renewable energy sources are envisaged, the national regulatory authority as well as the transmission system operator should be well informed. This information would allow them to elaborate better contingency plans for the overall energy system.

90 Also, recognising their limited ability in conducting energy planning activities, municipalities may display little interest in local distribution companies. This is the case for instance in Czech Republic where municipalities have received for free shares in local distribution companies as a result of the privatisation process but they are not motivated to actively engage in the companies’ development plans partly due to their limited experience in energy planning, partly because they do not see any financial benefits as shareholders due to the specific restrictions on dividend payment. See for details presentation of M.Maly on “Development of the Czech Energy Policy and Institutions” at the Seminar on institutional aspects of energy markets reform, Rome, 24 March 2003 (on file with the author).

91 Also, for a good practice on how local plans could be fed into national planning exercise see J.Jacubes, “Integrated Energy Plan of the Frydland Microregion”, Czech Republic, presentation delivered during the Managenergy Conference on Local Energy Planning, 20-21 October, Brussels. The full case-study is available on the Managenergy web site, www.managenergy.net.

92 WWF, “The Eastern Promise”, pg.11

93 Ibid 91.

94 See discussion in Chapter 3.
readily available, which is the case in Poland, Cyprus and Malta. Like in the EU-15, deficient coordination among the authorities involved in the approval cycle can sometimes add up to the challenges in bringing a renewable project on line.

In conclusion, in the NMS it may be that project lead times are sometimes higher than in the EU-15, depending on the country and technology involved (see Chapter five for values used in the modelling exercise).

**Transaction costs**

In a rather simplistic definition, transaction costs are those costs incurred to initiate and complete a transaction or determined by the opportunity cost. In the ADMIRE-REBUS framework, renewable investments are being regarded as a sequence of transactions from the moment when the project idea is generated until the end of the project lifetime and are considered separately from the main investment cost. Transaction costs may have different sources and may translate either in direct costs (e.g. cost of licenses, biding costs, participation in trading mechanisms for the energy green value etc) or in labour costs (e.g. hired technical or legal expertise and other services, etc). Needless to say that, were transaction costs to rise, the overall investment cost would rise accordingly. The relationship between transaction costs and lead times is rather straightforward: the higher the lead times, the higher the transaction costs are and thus the higher the overall investment cost. Transaction costs are extremely case specific as they depend on a wide variety of factors starting from the investor’s own experience with the host country, the macroeconomic situation in the host country, etc, to project related circumstances. In the ADMIRE-REBUS framework, a survey has been conducted for the EU-15. Figure 4.4 shows average transaction costs (as percentage of total investment costs) at different stages of project development.

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94 See Supra Note 91, pg.11
As Figure 4.4 above shows, transaction costs tend to be higher in the planning phase and in the enforcement phase. Therefore, the smoother the planning phase goes and the more the project developer is capable to stick with the original project design, hence the lower the overall cost of investment. In the NMS, due to potential challenges in particular in the planning phase but also because of the early stages of transition in the financial sector, transaction costs may be higher than in the EU-15 in short to medium term.

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\[95\] Time and expenses incurred to insist upon compliance with the terms of transaction once discrepancies are being discovered.

\[96\] At the beginning of the economic reform, transition countries were caught in a peculiar dilemma. On one hand they have embraced from the start the goals of a free-market economy but somehow were reluctant to open up their markets to foreign capital. In a context of scarce domestic capital, numerous irregularities in the privatisation process took place. The half-way approach gave incentives to economic agents to exploit at maximum the system weaknesses. Many investment funds have been hit hard due to management’s lack of transparency and questionable professional conduct (e.g. inside trading, loss-making security trading, bad loans awarded based on personal relationships rather than a sound business plan, etc). For details see M. Tomasek, “Illegal economy in the post-privatisation age: how far from the new system foundations? The case of corporate governance and banking sector in the Czech Republic”, paper presented at the seminar on “Unofficial activities in transition economies: ten years of experience”, 18-19 October, Zagreb (Croatia), Institute of Public Finance. In short to medium term, the activities of most of the investment funds currently operating in the region may need
During the past oil crises in the 70s and 80s, many people started to believe that renewable energy sources will take over a substantial proportion of the energy infrastructure. Today, a growing chorus joins the advocates of renewable energy and the reason why this happens is because some fundamental drivers have changed over time. The good performance (sometimes exceeding expectations) of some renewable technologies is finally recognized by the capital markets and it has been complemented with a policy framework that aims to adapt to market circumstances and to rising environmental and security of supply concerns. Each technology has its own characteristics and therefore will face different challenges in finding adequate financing. But, from the investor point of view, it all comes down to the ability of ensuring a stable market for the debt service term. And this is where risk (and consequently risk management) becomes central to the question of financing renewable energy projects. Again, different technologies will bare different types of risks but there are some general concerns that any investor will have when it comes to financing a renewable energy project and they can be summarised as follows:

- Will the project be completed on time and within the budget? Does the contractor have enough assets to cover losses if eventually the project does not progress as planned? Are there any external factors that might cause delays or even stop the project before it goes into production?
- Will the project perform at predicted capacity levels?
- Will the equipment be suitable for the job and are the spare parts readily available?
- Has the capacity factor been properly evaluated and will there be any changes in the fiscal, policy or political regime that might affect the project operation (and therefore revenue)?

- Will the project have the ability to sell the power at sufficient rates to ensure the debt servicing?\(^98\)
- Where applicable, will there be a problem with the fuel supply? (price risks, volume risk, weather risk, etc)
- What would be the future of carbon or green certificate credits (in case revenues have been considered in the project financing)\(^99\)?

So, when preparing a renewable energy project, an investor looks at two crucial elements: the risk profile and returns. All these issues are being synthesized in the Figure 4.5 below.

**Figure 4.5 Main elements in the project risk/return analysis in the project preparation phase**

![Diagram showing the risk and return profile for a project preparation phase]

**Source:** Sonntag-O’Brien (2004)\(^100\)

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\(^{98}\) As discussed in Chapter 3, one of the effects of liberalisation in energy markets was dynamic changes in market conditions and thus made energy demand forecasting a daunting task. For instance, the European Investment Bank’s experience in transition (and some EU-15) countries was that experts were too optimistic concerning the energy demand. As a result, some projects encountered significant difficulties and operated at suboptimal capacity, thus failing in securing the required revenue for debt servicing. See details in EIB, “Financing of energy projects in EU and CEE countries”, October 2001, www.eib.org.

\(^{99}\) For instance, if relevant policies are being relaxed after 2010, the price of these credits will go down and therefore their impact on the project financing will significantly diminish.

4.3.2. The ADMIRE-REBUS analytical framework for risk factors: experience with EU-15

As described in Chapter five of this paper, the ADMIRE-REBUS model calculates the minimum price an investor would need from the market in order to pursue an investment in a renewable energy project. In order to allow for such a calculation, a risk module has been incorporated which accounts for different types of risks associated with investments in renewable energy projects. In order to be able to better distinguish between various elements of risk as perceived by investors, within the ADMIRE-REBUS framework four different areas characterised by different levels of risk have been defined as presented in Figure 4.6 below.

Figure 4.6 The risk-related analytical framework in the ADMIRE-REBUS model

Looking from an investor perspective, the questions raised earlier in this section have been considered in the ADMIRE-REBUS model and three different categories of risk have been identified: technical risks (this category includes construction, technology and project operation risks), market risks (includes exchange rate and interest rate risks, electricity prices risks) and political risks (referring to possible changes in the policy support, approval cycle and planning risks).
Figure 4.7 below summarizes the findings of the survey conducted within the ADMIRE-REBUS framework for the EU-15 concerning the investor’s perception of various categories of risks. As previously mentioned, different technologies will be perceived differently by investors depending on their performance track record, availability in the host country, suitability to the task at hand, etc. Therefore separate surveys have been conducted for different technologies for the EU-15. However, qualitatively speaking, the distribution of various elements of risks tend to remain to some extent the same so for the purpose of this thesis, the general assessment is sufficient.

Fig 4.7 Investor’s perception of RES-E related risk factors in EU-15

Source: ECN (2003)

Note: The ranking for importance is from 1=very important to 5=not important, and for predictability is from 1=very uncertain to 5=certain.

It can be seen that while all political factors are considered as high risk, technology-related factors are perceived in general as low risk factors. From the market perspective, interest rates and the electricity price seems to be of most concern. Due to the euro, exchange rates have not been perceived as an issue in the EU-15. These findings seem to be in

107 See Supra Note 80.
line with the general perception in the markets today that while RES-E technologies are becoming increasingly familiar and confidence in their performance is on the rise, market and policy factors matter, in particular in the context of liberalisation.

4.3.3. Risk factors associated with investments in RES-E in the new Member States

As it was beyond the scope of this thesis to include a survey similar to the one made for the EU-15, the risk factors have been deduced in great part from the analysis presented in previous chapters and sections within the current chapter. Expert opinions have also been considered where it was possible. To this end, it is to be expected that similar risk factors like in the EU-15 will also apply to investments in RES-E projects in the NMS but given their different macroeconomic circumstances, differences do exist and they will be discussed in some detail in the following sections.

Market risks

As previously mentioned, in the ADMIRE-REBUS model, market risk factors include the electricity price risk, the price for the green value of the electricity generated from RES-E (in the model considered as the price for the green certificate risk under certain conditions as explained in Chapter five), the fuel price risk, interest rate risk and exchange rate risk. Mature technologies often receive little additional support beside the electricity price. Therefore, the market based revenue - electricity price - has a relatively higher share in the project revenue, in contrast with immature technologies who are not yet fully commercially viable and where the revenue from additional policy support represents a more important part in the project revenue stream. This implies that the market risk may be higher for mature technologies than for immature ones while the political risks may affect to a greater extent those technologies that are yet to become commercially viable. For EU-15, in the case of wind power for instance, the survey\textsuperscript{102} clearly identified the electricity price risk as the dominant one. For other technologies the fuel price risk can also be significant, especially for technologies where the switch of fuel type is associated with significant costs.

\textsuperscript{102} See Supra Note 80.
For EU-10, all these factors matter. As reforms in the electricity sector have been more advanced than in the heating sector, subsidies for electricity have been largely phased out. What is likely to determine the electricity price in short to medium term is the availability of competitive local resources (coal, oil shale, nuclear, hydro) and the strategy the NMS will adopt vis-à-vis the European markets (see discussion in Chapter three). Due to these factors, the electricity price may remain in some NMS in short to medium term lower than in the EU-15. Interest rates are likely on the other hand to remain somewhat higher than the average in the euro area in most of these countries (see discussion above.). Unlike the EU-15, exchange rates will remain relevant in short to medium term for reasons already explained. Fuel risks may surface in particular for biomass projects, also because of land ownership issues.

One other issue that has been considered implicitly in the modelling exercise for the EU-15 but not clearly specified as a risk factor per-se is the energy demand forecast. While in the EU-15 this type of data may be somehow more reliable due to higher quality statistical data and greater experience with local energy planning, in the EU-10 this issue remains an important one to be considered and further capacity building efforts to improve the ability of local experts in conducting such analysis will be key for a timely and efficient deployment of renewable energy sources in the region.

103 Land is an important asset for rural and urban population alike. In transition countries, former collective production structures failed to produce rural growth. After 1990, a long and cumbersome campaign for land restitution has started and with it a series of challenges surfaced, ranging from inefficiencies in land administration and record keeping to property rights allocations and dispute settlement procedures. Consequently, in some cases, the result is a highly fragmented land ownership, in particular in rural areas and short-term leasing practices, unlikely to be conducive to positive developments. If renewable projects are seen as part of the rural solution, clear and enforceable property rights and a long-term approach to land ownership are crucial. From the financial perspective, land may also be used as a collateral thus providing a means for local communities to access financial markets. However, current practices in many of the NMS are unlikely to be favourable unless urgent action is being taken, in particular by local communities (including local governments). Land use developments should also be coupled with developments in the agricultural sector. Further reforms in the agricultural sector (including the issue of biofuels) would require a sound analysis of the potential use of the agricultural land. Due to competitive usage, the areas which now are perceived potentially available for RES deployment may diminish in the future, depending on the overall level of integration (and objectives) of renewable, environmental, transport and agricultural policies. For a detailed discussion on land ownership issues see K. Deininger, “Land policies for growth and poverty reduction”, World Bank research paper, 2003, www.worldbank.org and for agricultural reforms see OECD, “Challenges for the agro-food sector in European transition countries”, www.oecd.org.
**Political risks**

As previously mentioned, political risk factors such as possible changes in support schemes and permits acquisition are perceived as important risk factors by many in the EU-15 (see Figure 4.7 above). In addition, the respondents to the survey seem to believe that political risk factors are the most difficult to be factored into an investment decision and therefore it is common place that investors do not include political risk factors when calculating a risk premium in projects that are being implemented in the EU-15. However, this does not mean that they are not being included in the risk calculations at all. The planning risk (especially permits acquisition) can be significant and it is usually being considered in lead-time and transaction costs estimations and in general is very little connected to the actual investment costs as no major investments are made before necessary permits have been granted.

In the EU-10, political risks may differ not necessarily in form but in magnitude. At national level, the risks are similar as in the EU-15 with the distinction that the NMS have just began to implement RES – specific policies therefore they do not benefit from years of practical experience with such instruments as their Western counterparts do. Consequently, some policies that are currently in place are an important step in the right direction but mostly inadequate or too weak to produce the desired outcome. Consequently, changes in main policy should be expected as EU-10 gain knowledge about the workings behind various policy instruments (see discussion in Chapter two and the discussion on the Romanian case study in Chapter five). However, as long as there is a strong political will to promote RES-E investments, a transparent process and adequate transition periods from one policy instrument to another, in the author's opinion, these policy changes should not be regarded as a major stumbling point for any long-term investment decision. Things can get more complicated however at local level where difficulties in acquiring accurate information on market size (and potential growth) for renewable energy sources and in acquiring all necessary permits may indeed increase the risk for the investor.

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104 In many transition economies there is a significant information asymmetry between the local electricity supplier and the municipality staff on these issues. Therefore the success will depend on the interplay between new entrants, the municipality and the local supplier.
Technical\textsuperscript{105} risks

For most RES-E technologies, investment costs are significant from the financing point of view because they incur upfront, in other words in a phase when a considerable amount of uncertainty still hangs over the project/technology performance. The investment costs for mature technologies have been however relatively stable in recent years and standardized information has been made available to interested investors. Therefore, even if significant, they can be relatively easy to predict and in general tend to be of little concern for the investors (see Figure 4.7 above). The same goes for operation and maintenance assumptions and assumptions related to the economic lifetime of the project. For less mature technologies, such as PV, wind off-shore, tidal and wave, etc, standardized information is not yet easily available. Investment costs vary considerably among various types of the same technology depending on the manufacturer, a sign that some of these technologies may not have found yet the ‘true’ investment cost level. The insufficient proven performance track record may explain a higher level of risk aversion on the investor’s side with respect to operation and maintenance costs, the economic lifetime, etc. For these technologies, it may not be surprising to see that technical risks are being slotted into the category “Risk factors: important and hard to predict” (see Figure 4.6 above). In the EU-10, no major differences should be expected from the technical point of view. With the exception of hydro and some biomass technologies, most of RES-E technologies are imported from Western countries. Consequently, provided that infrastructure (and adequate fiscal regimes) are in place to ensure a smooth import (also for spare parts), in the author’s opinion, there are no particular reasons to believe that technical risks will be any different than in the EU-15. Consequently, technology-specific investment costs for various technologies have been considered in the model similar to the ones in the EU-15 (See Chapter five for details). What may differ in the EU-10 countries, are the operation and maintenance costs (O&M) due to lower labour costs. However, due to lack of reliable data, for the modelling exercise explained in detail in Chapter five, the values for these costs that have been applied for the NMS are the same as for the EU-15.

\textsuperscript{105} In the original ECN Report, these risks are referred to as technological risks. However, the author prefers the term “technical” to avoid confusion about what these risks are all about. Technological risks are commonly known as risks associated with the performance of the technology itself. However, in the ADMIRE-REBUS model, other aspects related to the project operation are also being considered.
4.3.4. Investing in the new Member States in renewable energy: how risky it really is?

Previous sections aimed at shedding some light on challenges and opportunities in the NMS that might hamper or support investments in renewable energy sources. The analysis has been conducted in comparison with the EU-15 to identify similarities and differences between the two groups of countries, from an investor point of view. In this section, a summary of the main findings is provided.

From the macroeconomic perspective, the NMS will face in short to medium term a period of changes in monetary and fiscal policies as they need to be fine-tuned before these countries will be able to join the European Monetary Union. Provided that the new Member States stay the course of the economic reform, it is to be expected that market fundamentals will continue to improve. In short to medium term, this process will have some impact on inflation, interest and exchange rates (e.g. higher inflation rates, higher interest rates and more volatile exchange rates). However, because these developments have already been factored in at the political level as well as by the markets themselves, in the author’s opinion, this dynamics should have little influence on long term investment decisions in the EU-10.

At the project development level, there are some similarities between the NMS and the EU-15. Complicated administrative procedures, lack of a coherent process of spatial planning, lack of coordination among various authorities involved in the approval process, grid connection issues and public resistance are some of the difficulties that investors in RES-E may face in both groups of countries and which may lead to longer project lead times and higher transaction costs than would otherwise be necessary. Compared with the EU-15, transaction costs in the NMS are expected to be higher in particular in the planning phase and in case of deviations from the original business plan. Risks associated with investments in renewable energy sources are similar with the ones in the EU-15 in particular technical risks. Electricity prices are in both groups of countries a significant market risk factor and possible changes in policies and permit acquisition remain chief political risks both in the EU-15 as well as in the NMS.
When it comes to investing in renewable energy sources, the differences between the two groups of countries are in the detail rather than in form. In general, there is an apparent division of the region in clusters that tend to develop based on historic/trading relationships with the Baltic States in one cluster, Czech Republic, Hungary, Poland, Slovakia and Slovenia in another and Cyprus and Malta two rather isolated cases. At a closer look, there are differences within the clusters with Estonia and Slovenia as A students of their class in some respects and Hungary and Poland lagging somehow behind. Cyprus and Malta remain two isolated systems to which little attention is being paid to date, in particular concerning statistical data and legislative framework. So, the region is quite heterogeneous and consequently different business strategies might be needed for different countries as it seems to be currently the case in the EU-15.

In the EU-10 (as opposed to the EU-15), an investor in RES-E may face some specific challenges. Among the most important ones are the insufficient capacity at local level to identify and prepare bankable projects (especially lack of experience of local developers with market assessment tools) and to adequately forecast energy demand growth (and consequently the feasible potential for RES-E market growth). Apart from the electricity price which has been identified as the most significant market risk for both groups of countries, other market risks such as exchange rate risks and fuel risks are likely to remain of some significance in the EU-10.

Finally, the author believes that as long as these differences are being acknowledged both at political and market level, investing in RES-E in the NMS should not be regarded as being a too different undertaking. However, due to their specific circumstances, investments in RES-E projects in the NMS do require innovation in designing suitable business strategies across countries.

**4.4. Financing RES-E in the new Member States: the “who” and “how” questions**

It is becoming evident that renewable energy can achieve significant environmental and sustainable development goals. However, the past bias towards conventional energy sources led to the current status quo where the majority of renewable energy technologies (with the exception of wind turbines and some biomass technologies), are still perceived as
new and less proven technologies although some have been available for quite some time.

In order to spark off a shift towards clean technologies investments the author believes it is important to understand the difference between the green and the “grey” energy. In other words, it is important to recognize the real value of energy generated from renewable energy sources, namely the green value. In liberalised markets, energy generators are highly dependent on capital markets to raise financing for their operation. In this context, the energy as a commodity becomes more of a private good than it used to be the case in the past when integrated companies were state owned utilities with the sole purpose to sell kWh. Renewable energy generators as well are dependent on capital markets but the energy they generate (or better said the green value of that energy), due to its specific characteristics (environmentally friendly, higher local impact, safer), is becoming, in author's view, a private good with a wider range of public benefits. Consequently, its financing would need to be tailored as such so that it reflects this important aspect. Hence, in author's opinion, it is to be expected that local authorities and local communities may need to play a more active role in promoting renewable energy sources than it used to be the case with conventional sources.

Although a comprehensive overview of various financing mechanisms for renewable energy sources would indeed be insightful, it goes beyond the scope of this paper. Therefore, this section will focus exclusively on few ideas related to innovative financing schemes that have not been yet explored (at all or in full) across European countries but which, the author believes, may prove an important vehicle to promote renewable energy sources in the near future.

106 For the purpose of this section, grey energy refers to energy generated from conventional sources. This definition should not be confused with the one used in the ADMIRE-REBUS model framework and consequently applied in the modelling exercise described in detail in Chapter 5. In the model, the grey market is determined by those RES-E sources that do not benefit from additional support policies but do account against the RES-E target such as large hydro and, in some countries, biomass co-firing. 107 The author recognises that there are also some local impacts of RES-E that may not be considered by the public at large as beneficial, e.g. noise pollution, impact on fisheries of small hydro, etc. However, well implemented RES-E projects should be conducive to wider economic and health improvements at local level. For instance, reducing the need for oil imports could free-up capital that could be used on other community projects. Local employment should also rise as it is important to establish a good service for technology maintenance, market channels and manufacturing at local level. As it is beyond the scope of this paper to investigate in depth these issues, further research may be needed in this area in order to support a clear-cut conclusion.
4.4.1. Financing renewable energy sources: issues at hand

Although the renewable energy business has an annual turnover in Europe of around €10 bn\textsuperscript{108}, it failed to capture the investor’s attention as higher risks (real or perceived) do not seem to be compensated by higher returns. Markets so far responded to technology performance improvements and cost reductions (wind and solar PV for instance, are being produced nowadays at one-tenth of the cost back in the early 1980s and additional cost reductions of approx. 5\% per year are expected in the near term\textsuperscript{109}) as well as to the implementation of specific policy instruments (feed-in-tariffs, quota obligations, fiscal incentives, etc). Financial markets responded as well to recent developments in the European energy markets where liberalisation brought about a lot of uncertainty. Due to competition concerns, long term agreements (fuel supply, power purchase agreements)\textsuperscript{110} are now being revisited and therefore, in the absence of such an agreement, the risk that the new project will not be able to sell sufficient power to service the debt may be (or it is perceived to be ) higher. This may happen partly because of possible misconceptions concerning certain RES-E technologies but also because the renewable market is still very much a policy driven market (therefore vulnerable to changes in political attitude towards their promotion) and not a market driven by real demand for electricity with green value (in which case investments would follow the customer demand and therefore perceptions about real risks associated with renewable energy may be less important) Moreover integrated companies are now competing for capital on international financial markets therefore they tend to focus on short-term objectives to fulfil the expectations of their shareholders which may not always coincide with the real needs of their customers (increase service quality, wider range of supply options). Spot markets developed as a natural element in the context of open, integrated and liberalised energy market but they failed to convince as yet that they could become a viable alternative to long-term power purchase agreements in short to medium term. As for renewable energy generators, some are small to medium in size, most without a solid track record and most likely less able to cope with the high volatility (in electricity prices and volume) resulted from the liberalisation process than integrated companies can. Due to higher

\textsuperscript{108} V.Sonntag O’Brian and E.Usher, “Mobilising financing for renewable energy”, Thematic paper prepared for the Renewable 2004 conference, Bonn, June 2004, pg.5, (on file with the author);
\textsuperscript{109} Ibid 108.
\textsuperscript{110} See discussion in Chapter 3
perceived risk associated with small and medium sized enterprises, capital markets consequently require a lower leverage\(^{111}\), requirement that for most SMEs is difficult to fulfil. Given all these challenges, it becomes evident that different types of financing will be needed at different stages of RES development. Figure 4.8 and Figure 4.9\(^{112}\) in Annex 4.I provide a good overview of issues related to financing on-grid and off-grid renewable energy generation.

### 4.4.2. Financing renewable energy sources in the new Member States

The experience with renewable energy source in the EU-15 provides an interesting insight from which the new Member States may benefit enormously: despite of a stable macroeconomic environment, existence of specific policy tools, availability of public and private financing, etc, the share of renewable energy in the overall energy mix did not seem to have reached so far the level expected and fears are that targets set for 2010 for electricity produced from renewable energy sources are going to be missed. In the author’s opinion, much falls on the shoulders of local actors and the EU membership hopefully will open up some windows of opportunity for the new Member States and support them in this daring undertaking. Therefore this section will focus on the capacity of local governments in NMS, in particular municipalities, to engage in financial markets.

**Local governments in the new Member States: the price of decentralization**

Before entering into the subject of this section, the author would like to briefly explain the notion of local government to be understood for the purpose of this paper. The territory of any European country is divided into different types of administrative units which have different powers and responsibilities. Most countries have one or two tiers governments, with municipalities being at the lowest level (in terms of policy and other purely administrative matters but the most important with respect to investment decisions) and counties and regions at the upper administrative level. Therefore, local governments in general include all levels municipal, county and regional and this is the meaning intended for this paper. However, in the NMS, municipalities have a crucial role

\(^{111}\) In other words, a higher proportion of equity.

\(^{112}\) See *Supra Note* 108.
relative to investment decisions for community projects and consequently, the section will focus in most part on this level of the local government.

One of the most important reforms in the new Member States, at the beginning of the transition period, was the public administration reform. Decentralisation provided new roles for local governments. As public authorities, local governments started to enjoy a considerable discretion in policy-making and became responsible for providing vital services at the level of local communities. More importantly, the public administration reform created the municipal property (as a separate asset from the State). Together with all the obvious benefits, decentralisation however resulted in some unintended, challenging outcomes: limited power of local governments to control their revenues, high capital investments needs because of the poor condition of the inherited property and, in some cases, puzzling territorial divisions whose responsibilities (and their financial sustainability) is unclear or uncertain.

In the same time, local governments in the new Member States, like their Western counterparts, are increasingly facing the need for capital to make all necessary investments to maintain an adequate level of public services in compliance with European standards but the question remains: where this capital is likely to come from? Up to now, in the new Member States, central governments were responsible to transfer revenues to local governments in form of shared tax, soft loans or grants. However, due to a general scarcity of public revenues and competing investment priorities at national level prompted by the accession process, this pattern is unlikely to be sustainable in the near future so access of local governments to capital markets is becoming not only fashionable but necessary.

*Local borrowing: a comparative analysis between the new Member States and the EU-15*

There are few reasons why local governments may choose to borrow[^113]. Borrowing could be an effective way to overcome the equity problem.

[^113]: For the purpose of this thesis, two financial instruments will be considered: bank loans and municipal bonds. Municipal bonds are debt instruments sold by political entities such as states, counties or cities, airport authorities, school districts and other governmental agencies. In general there are two types of bonds: general obligation bonds which are backed by the full faith and credit (tax power) of the issuer and revenue bonds which are backed either by the revenues of a specific project (e.g. a toll road) or a particular municipal agency operating the project. For a discussion on municipal
among the tax payers. But there are also some other, more tangible, reasons to borrow. For instance, the local community may benefit from accelerated developments. In addition, borrowed capital may be instrumental for local governments to access grants (such as financial assistance from the EU) and other development funds, in other words to provide the necessary co-financing. But borrowing may also have negative impacts. If not adequately monitored, excessive indebtedness of local governments could have a negative impact on inflation and other parameters of the national economy. A boost in demand created by local governments’ appetite to borrow may spark-off higher interest rates and eventually crowd out private investments. Therefore it is important not only to monitor how much local governments are borrowing but also for what purpose. Over the years, a distinction has been made between borrowing to cover operating costs and borrowing to cover capital investments. Given the fact that borrowing comes at a cost, it has become a good practice to advise (or oblige by law as it is the case in most Western European countries) local governments to borrow only for capital investments purpose. In Western Europe for instance, in most countries borrowing to cover the operating costs is prohibited. But local governments at times do encounter financial difficulties. For instance in Norway, in theory, if a local government presents an unbalanced current budget, it may be possible that the state regional commission will not approve it. In practice however, 18% of local governments have run budget deficits through creative accounting but the deficit has been paid off within maximum two years. In UK, France, Spain, and Switzerland, the regional authority may impose an increase in local taxes if a deficit occurs and the municipality did not take adequate measures to correct the situation. In the past, Italy incurred severe difficulties with local government financing and Spain is the only exception that appears not to have a legal requirement for the local governments to separate current and capital accounts. One other interesting phenomenon that is worth

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114 Costs incurred by local government for providing vital, mandatory services.
116 Ibid 115.
117 Back in 1976, current revenues of many municipalities covered no more than 70% of the current spending. At the beginning of 1977, local debt exceeded 11% of GDP. Two thirds of the new loans were made to pay old loans. In 1978, local governments were restricted to borrow only for the purpose to finance public works. Ibid 115.
118 Therefore local debt is difficult to monitor.
pointing out is the situation of the municipal companies. As utilities have been privatised, even if they are in fact still owned by municipalities, their debt does not count against the public debt. For instance in Germany (Saarbrucken), statistics show that the formal debt of the city decreased from €658Million in 1990 to €632Million. In the same time, the debt of the municipal companies increased from 0 to €237Million over the same period of time and a similar situation has been recorded in Frankfurt.\textsuperscript{119}

Together with the adoption of the Maastricht criteria (when central governments had to operate under much stricter budgetary constraints), a new question came up: how much should local governments be allowed to “contribute” to the public debt? Figure 4.10 below shows the situation in the EU-15 in year 2000. It should come at no surprise that the question has no single answer and different countries adopt different attitudes to local debt. But what seems to be the general message is that local governments account for a very significant part of the public investment, ranging from 50% to almost 80% of the total public investment. These are mainly municipalities as usually they are the ones with considerable discretion on investment spending and tend to have more stable revenues as compared to upper tiers of the local government.

\textsuperscript{119} See Supra Note 115, pg.24
Recognising the special circumstances of local government, most countries in Western Europe have established special vehicles to manage municipal financing. For instance, in Italy the special Deposit and Loan Fund was, until 1989, the only source of local borrowing. In the UK the Public Works Loan Board financed in 1991 approximately 78% of total local debt. In France Credit Local de France held around 40% of total local debt in 1998 followed by Credit Agricole. Despite the existence of these specialised institutions, contracting bank loans remains more popular among western municipalities than issuing municipal bonds.

120 See Supra Note 115, pg.26.
121 The main difference between the two the two is that by issuing bonds the issuer (the municipality) incurs additional costs but it does provide opportunities to broader access to capital financing. Therefore, it is usually the big cities and the capitals that choose more often this type of instrument.
In the new Member States, borrowing altogether is a rather new experience. Before 1990, the local government was not allowed to borrow and did not have any property except the one owned by the State itself. The only exception to the rule was probably Hungary where borrowing by local governments was at least lawful as early as the 1980s. A common characteristic of the public administration reform in the region has been that the role of the lower level (the municipalities) has been strengthened while the role of the upper levels (the counties and the regions) has been weakened. Consequently, legal borrowing has become mainly a municipal business. In the new Member States, the property the municipalities have inherited at the beginning of the process needs huge capital investments in order to meet the European standards. Throughout the 1990s, the need for capital investments did not surface to a great extent due to significant available transfers from the central budget, revenues from privatisations, grants and soft loans from national funds, in particular environmental funds. However, as a significant part of the privatisation process has already been concluded and national funds are being reorganised so that they can operate on a more commercial basis, most of these cheap sources of revenue are diminishing and sooner rather than latter, local governments may need to consider borrowing an alternative.

Although municipal borrowing picked up in recent years, it is far from having achieved a level similar to their counterparts in Western Europe. Given their rather recent history of spending autonomy, this should not come as a surprise. Although it is difficult to generalise for all countries in the region, it seems common that municipal budgets mainly include four types of revenues: shared taxes (with central government), conditional and un-conditional fiscal transfers (from the central government and other financial institutions) and own sources. Given this structure, it is becoming evident that local governments in the NMS are highly dependent still on revenues from the central government. Although in some cases the definition of ‘own sources’ is unclear, real estate taxes and some user charges remain the few options

122 Environmental funds were off-budget allocations towards municipalities for projects aiming at environmental protection measures. Through these funds, some infrastructure projects have been financed. Although not purposefully designed as such, environmental funds have been one of the main institutions to handle municipal debt and in this capacity they helped in developing a municipal capital market. In addition, in some cases, if the municipalities kept a good financial discipline (namely the projects were completed on time and within the estimated budget), part or the total loan would be written off. This may have helped some municipalities to get used with a financial discipline that is much needed in capital markets.
municipalities have to raise their own revenues. The share of local taxes in the total local public revenue differs considerably among countries as depicted in Figure 4.11 below.

**Figure 4.11 Local tax revenue/total public revenue (excluding borrowing) in the new Member States in 2003**

<table>
<thead>
<tr>
<th>In %</th>
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<tbody>
<tr>
<td>EU-25</td>
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<td>EU-10</td>
</tr>
<tr>
<td>Estonia</td>
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<tr>
<td>Lithuania</td>
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<tr>
<td>Czech Republic</td>
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<tr>
<td>Hungary</td>
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<td>Slovenia</td>
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<tr>
<td>Poland</td>
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<tr>
<td>Slovakia</td>
</tr>
</tbody>
</table>

*Except Cyprus, Latvia and Malta.

**Source:** Dexia Group (2004)

Due to frequent changes in legislation, especially taxation, municipal revenues are highly volatile and therefore represent a significant challenge for long-term planning and evidently, for borrowing. Accounting rules add up to the list of challenges as well. As mentioned earlier in the section, in most Western countries (with the exception of Spain), capital investment accounts and operating accounts are separate. This allows for a better monitoring of local expenditure. This appears however not to be the case in most new Member States. Even if not always stipulated by law, it is a common understating in the region that borrowing should

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mainly take place for capital investments but the actual expenditure is difficult to trace under the current accounting rules. Because the high uncertainty surrounding the budgets available for municipalities every year, the common practice in the region is to work based on annual budgets. In Poland, the law allows local governments to include multi-year investments plans as annexes to the annual budget\textsuperscript{124}. However, the investments plans can be changed with a simple budget resolution therefore remain highly sensitive to political risk. In some new Member States, limitations on local government borrowing have been implemented in various forms with only one exception, the Czech Republic\textsuperscript{125} (in Slovakia\textsuperscript{126} such limitations are becoming operational as of 2005). The limitations are set as a proportion of the total annual debt (or debt service) in total (or current) revenue of the local governments. In some cases, loans from the central government do not account against this limit. In addition, in Poland, the local debt is closely linked to the central government borrowing. According to the Polish law, if the central government debt exceeds 50% of GDP, no local government can incur any new debt greater than the percentage set by the central government concerning the planned annual deficit to its planned annual revenues. For example, if the central government debt reached the 50% threshold and the central government decided to limit its borrowing to 5% of its revenues, no local government can borrow more than 5% of its revenues during that same year. Following the same train of thought, if the central government decides not to borrow at all, no local government can incur

\textsuperscript{124} A. Kopanska, T. Levitas, “The regulation and development of sovereign debt market in Poland 1993-2002” in P. Swianiewicz (Ed), Local Government Borrowing: risks ad rewards; a report on Central and Eastern Europe, pg. 38

\textsuperscript{125} In Czech Republic there are also some other legal issues worth mentioning. For instance, under the Czech law, credits and loans, although essentially the same type of instruments, have a totally different meaning. A credit might be granted by a bank under the Commercial Code. As such, it comes without saying that an interest will have to be paid by the borrower. A loan on the other hand, can be contracted under the Civil Code and therefore is an interest-free debt instrument. However, interestingly enough, the law does not prevent mutual agreements between parties on interest payment. Another interesting legal twist can be observed in the definition of the municipal bond which in Czech Republic appears to have a more restrictive meaning that the term is normally used by the financial community. Under the Czech law, a municipal bond can be issued by a bank only if the bank can provide credit to the municipality from the municipal bond yield and municipal property is offered as a collateral. The law however, does not prevent municipalities from issuing bonds that do not bare the name “municipal” and therefore it seems, are not bound by the same rules. For details, see V. Jezek, H. Markova and L. Vana, “Local government borrowing in deregulated market of the Czech Republic” in P. Swianiewicz (Ed), Local Government Borrowing: risks ad rewards; a report on Central and Eastern Europe, pg.140-148.

\textsuperscript{126} J. Kling and V. Nizuansky, “From deregulation to regulation and stabilisation in Slovakia” in P. Swianiewicz (Ed), Local Government Borrowing: risks ad rewards; a report on Central and Eastern Europe.
debt in that year either. Even more, if the total debt was to exceed 60% of the GDP neither the local government nor the central government can incur any new debt\textsuperscript{127}. Because Poland is to absorb the most significant share of structural funds (as it will be highlighted in the next section), it is worth emphasising some of the risks awaiting local governments. One interesting aspect of the Polish legislation is that it requires the inclusion of sovereign guarantees\textsuperscript{128} in the debt calculation. In addition, because the national borrowing accounts for 98% of the consolidated debt and it is getting closer to the 50% of GDP threshold set by the law\textsuperscript{129}, local governments may soon find themselves in impossibility to incur debt that suits their local needs or at all for that matter.

In Estonia, a similar limit on local governments borrowing is placed with the difference that transfers from the central government are excluded from the debt calculation\textsuperscript{130}. Limitations to local borrowing, although in principle a good idea especially for the new Member States have raised several practical issues, the most important of all being the enforcement issue. Because of current unclear regulations (especially concerning off-budget organisations\textsuperscript{131}) and accounting rules, it can be very difficult to monitor local government debt. In addition, with the exception of Poland, most of the new Member States do not seem to have in place a sound system for monitoring sovereign guarantees issued by the state or by the municipality. This may create significant difficulties in assessing the country’s contingent liabilities\textsuperscript{132}.

\textsuperscript{127} See Supra Note 124.
\textsuperscript{128} Guarantees issued by the state. Most commonly, these guarantees are issued for big projects entirely or partially financed with public funds. Energy projects fell usually under this category.
\textsuperscript{129} According to some estimations, the public debt in Poland is expected to be around 54% of GDP in 2005. See Supra Note 124.
\textsuperscript{130} A.Jaansoo, S. Liivik, A. Jogi and T. Milt, “Local government borrowing: regulations and practices in Estonia” in P. Swianiewicz (Ed), Local Government Borrowing: risks ad rewards; a report on Central and Eastern Europe
\textsuperscript{131} Municipal organisations that operate on commercial basis and therefore are not included in the local budgeting exercise.
\textsuperscript{132} Contingent liabilities are associated with major fiscal risks. Fiscal risks and uncertainties may increase for four main reasons: private capital flows are increasing and becoming more volatile, states are moving from financing services to guaranteeing outcomes, moral hazard is increasing in the markets or policy makers are engaging in fiscal opportunism. In the new Member States, contingent liabilities are usually linked with bank bailouts, bailouts of former strategic state-owned enterprises and most likely pension payments after 2010. For a good discussion on contingent liabilities see World Bank, “Contingent liabilities- a threat to fiscal stability”, Economic policy, November 1998, Issue no.9, www.worldbank.org.
Finally it seems important to address the issue of small municipalities. Most of the countries, with the exception of Poland, are small countries and their municipalities tend to have much less inhabitants than 10000, which seems to be the benchmark in Western countries for a municipality to be able to have a stable financial situation. It is therefore to be expected that small villages and towns in the new Member States tend to have a rather precarious situation and usually depend on the tax from the few (sometimes the only) companies operating in their jurisdiction. In Hungary for instance, the national oil company (MOL) admitted in 2002 that because of some accounting mistakes they have ended up paying millions of HUF (Hungarian Forint, the national currency) in local taxes in the village of Algyo more than their tax liability. The company has requested to be reimbursed but the ‘bill’ is as high as the village’s annual budget.

Apart from these challenges which seem to be common to most of the countries in the region, there are some other country-specific issues that would need to be addressed in the immediate future were municipal capital markets to become robust (see Box.4.2 for some examples).

133 This is no small issue. In Hungary about 90% of the municipalities have been excluded from the capital markets because of lack of sufficient revenues. See details in G.Balas and J.Hegedus, “Local government borrowing in Hungary” in P. Swianiewicz (Ed), Local Government Borrowing: risks ad rewards: a report on Central and Eastern Europe, pg111.

134 The village is where the oil well is.

135 Ibid 133.
Box 4.2 Country-specific issues related to local government financing in Estonia and Slovakia

**Estonia** [1]

In Estonia there is a National Investment Program (NIP) with the main role to co-finance local projects identified by the local governments as priorities for their constituency. The local governments have to submit their proposal to the county government who is mainly responsible in elaborating a list with proposed projects for all municipalities under its jurisdiction and submit it to the line ministries so that the projects can be included in the NIP. A minimum 10% co-financing from the local government’s own financial resources is required according to the regulations governing this program. In practice however, regulations are circumvented in more than one way. Despite the requirement for a minimum of 10% co-financing, some local governments end up having their projects financed 100%. Often ministries change priorities without any prior consultation with the local governments who have submitted projects for the NIP. Priority seems to be given any way to projects which are already in some stage of development [2]. In addition, it seems that sometimes local governments are asking for less capital that would otherwise be needed for a successful completion of the proposed project in hope that this would appeal to central authorities and the project will be approved and assuming that in subsequent years they could apply for additional financing [3].

**Slovakia** [4]

Slovakia is one of the new Member States with a very challenging framework for local governments. Since 1991, there have been five waves of territorial reforms (1991, 1998, 2001, 2002, 2004). This fast changing legal environment makes it difficult if not impossible to elaborate a long-term investment strategy, in particular at local level. Every year, transfers from the central budget account for more than one third of the local government’s budgets. But as the central budget is usually approved with significant delays, municipalities do not really know what budget they will have until the very last moment.

Accounting rules do not seem to be making the task of assessing the real situation of the municipal debt an easy one. It seems that those municipalities with less than 3000 inhabitants do not need to submit to the central authority (Ministry of Finance) a balance sheet. In the year 2000, only 224 municipalities out of 2883 municipalities had more than 3000 inhabitants so the situation of the remaining 2659 municipalities is largely overlooked. In addition, the legislation is not clear for instance on the definition of debt, more precisely whether sovereign guarantees account or not for the debt calculation purposes. Given the fact that municipalities can, according to the law, grant returnable financial assistance to municipal companies (off-budget entities) as well as private companies, the legal framework seems to allow for a high probability of fraud and mismanagement of the public funding.

[2] If indeed projects which are already on the way are being given priority, the author would assume that their financial closure happened before the start of the project. If this is the case, it is not clear (for the author at least) whether the project developers have factored in their financial calculation the possibility that some funds would be allocated at a later stage from NIP or the NIP is simply pitching in for projects that seem to go well beyond the budget and where a further commitment of the investor can not be secured.

[3] The author believes that this behaviour diminishes considerably the ability of the fund managers to do an adequate long-term planning.


The role of the local banks in the municipal capital market is equally important. Over the last decade, the local banks became accustomed to see local governments as safe clients who, in case of financial distress, will most likely be rescued by the central government (as it is not politically acceptable to have a bankrupt local government). Capitals are in particular interesting clients as their revenue tends to be much more stable and banks focused in recent years on their borrowing needs. Because local governments have proven rather conservative with respect to borrowing and given their perceived low risk, local banks do not usually make a distinction between local governments with a sound financial situation and the ones that do not. Consequently, the approach to municipal borrowing on the part of local financial institutions is rather mixed in the author’s view. On one hand, the approach seems quite conservative in the sense that most of the municipal loans are securitised with municipal property for values far exceeding 100% of the borrowed amount. On the other hand however, they seem less receptive to the idea that local governments could also experience financial difficulties and central government rescue may not always be an option.
at hand. In addition, by distinguishing among local governments (for instance by using a larger scale credit rating for local governments) and increase their ability to provide a wide range of debt structuring for cities other than the capitals and the big ones, local financial institutions may be able to gain a valuable competitive advantage against their Western counterparts, capitalising on their inside knowledge of local circumstances. Some good practices (in the author’s view) concerning municipal capital markets may already be emerging in the region (see Box 4.3 below).

<table>
<thead>
<tr>
<th>Box 4.3 Possible good practices in municipal financing in selected CEE countries</th>
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<tr>
<td><strong>Hungary</strong> [1] – a possibly replicable financing scheme for local communities</td>
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<tr>
<td>In Hungary there is a special investment scheme used for investments in water management projects. Under this particular scheme, people living in an area where there is a need to invest in the water sector could form a so called Water Association. The Water Association is entitled to receive credit for the investment under the condition that the loan is guaranteed in partnership with local government. The debt is so structured that all members are individually responsible for their own share. In case of a default of the Water association, the local government is obliged to make the payments and is allowed to collect the arrears as a local tax. The arrears can be applied as mortgage on the property [2].</td>
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<tr>
<td><strong>Slovakia</strong> [3] – improving the ability of local banks to deal with municipal debt</td>
</tr>
<tr>
<td>In 1993, several municipalities established a municipal bank called Prva Komunalna Banka (PKB). In 1996, the bank obtained the authorisation to operate on commercial basis. The bank has been acquired by the Dexia Kommunual Kredit Holding and now focuses on the municipal sector, including the municipal utilities. The bank appears to continuously improve its ability to deal with municipalities and to understand their specific needs. Over the last years, the bank has helped municipalities facing difficult financial situation to restructure their debt. In addition, the bank has acquired experience with managing pre-accession funds and provides training on project financing and on the specifics of environmental projects financing [4].</td>
</tr>
</tbody>
</table>


[2] As renewable energy sources are mostly a local issue, the concept could probably apply also to communities where new generation capacity is needed. The scheme is all the more interesting given the fact that
residential crediting has recently picked up in the region. Although a cautious approach to residential crediting is needed for the new Member States, especially in short to medium term when the effects of the accession process will still have a significant impact on the countries economies, in the author’s view, it could be an option for income communities in CEE countries to access capital markets. However, in the author’s opinion, only those municipalities/local governments with a sound management (using for instance specific credit rating methodologies) may be fit to establish such schemes.


[4] In the author’s opinion, local banks in the new Member States have a real market niche in establishing specialised services for local communities as they are already familiar with their needs and perspectives. Therefore, establishing specialised organisations is, in author’s opinion, a good practice. However, in Slovakia it seems that local governments, who would like to have a loan from PKB, may be obliged to hold their current account with the bank. In author’s opinion, this is a rather uncompetitive practice but she recognises that given the special circumstances in Slovakia (namely frequent changes in legislation which affect the revenues of local governments), this requirement may be regarded for the time being as a safety measure. This is why, the author believes that for a well functioning municipal capital markets, risk management in particular for local banks, is a crucial issue. In this way higher flexibility is ensured and eventually cheaper cost of financing for local communities in overall.

An examination of public expenditure to GDP would reveal great differences among countries, depending on the level of administrative and fiscal decentralisation. Although still well below the level of Western countries, public debt rose in the EU-10 over the last years. In 2003, the total public debt in the EU-10 stood at 42.1 % of total GDP as opposed to their Western counterparts where the public debt in 2003 was 64.3%. The cautious attitude towards municipal borrowing does not have a single explanation in the EU-10. However the trend seems to be

136 See Supra Note 123.
an upsurge in the public expenditures, in particular due to increased local governments’ appetite to borrow as on one hand, financial resources available from central budgets are diminishing while the need for capital investments steadily increases. In particular countries like Poland, Hungary, Malta and Cyprus exhibited in 2003 a level of public debt (as percentage of GDP) above the EU-10 average with 45.4%, 59.1%, 71.1% and 70.9% respectively. The situation is particularly perilous for Cyprus and Malta as they display not only a much higher public deficit but also a specialised economy, highly dependent on tourism. The public deficit is mainly due to central government expenditures as in these two small countries local public expenditures are particularly low (1.8% GDP and 0.7% GDP in 2003 respectively) as devolving responsibilities to local governments is much more limited in scope than other new Member States.

Figure 4.12 Public debt/GDP in EU-15 and EU-10 (2003)

![Figure 4.12 Public debt/GDP in EU-15 and EU-10 (2003)](image)

Source: Dexia Group (2004)

137 See discussion in section §4.2.1.2

218
Like in the EU-15, in EU-10 local public expenditure should be expected to increase in particular due to the opportunity offered by the structural funds\(^{138}\). However, it is most likely that the expected increase in public expenditure will occur at a slower pace than in the EU-15, given the need to maintain a tight fiscal discipline as explained earlier in this chapter.

At local level, the cautious attitude towards municipal borrowing does not have a single explanation in the EU-10. A relatively recently acquired autonomy (and therefore property rights) coupled with lack of investment incentives and a fast changing legal and institutional framework made local governments to be rather reluctant. *Figure 4.13* shows local public expenditure figures much lower than in the western counterparts.

*Figure 4.13 Local public expenditure in the new Member States/GDP in 2003*

<table>
<thead>
<tr>
<th>Country</th>
<th>Local Public Expenditure % of GDP</th>
<th>EU-25</th>
<th>EU-10</th>
<th>Poland</th>
<th>Czech Republic</th>
<th>Hungary</th>
<th>Slovenia</th>
<th>Latvia</th>
<th>Estonia</th>
<th>Slovakia</th>
<th>Lithuania</th>
<th>Cyprus</th>
<th>Malta</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>12</td>
<td>14</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Dexia Group (2004)*

\(^{138}\) Over the period 1998-2003, local public expenditure in Ireland increased by 13.5% due to the positive impact of Structural Funds. See *Supra Note* 123, pg. 6.
A significant difference from the Western European countries is that the need for local capital investments is much higher in the NMS, in particular with respect to infrastructure in environment and transport sectors\textsuperscript{139} but significant differences exist among these countries. On the high end of the spectrum are countries from Central Europe Hungary, Czech Republic and Poland with quite high local capital investment ratios, 2%, 2.7% and 2.3% of GDP in 2003 respectively. Only Ireland outpaced Czech Republic with 3% and in Poland the level is comparable with Spain\textsuperscript{140}. In the Baltic States, Slovenia and Slovakia, local capital expenditure amounted for about 1% to 1.5% of GDP, with Estonia having an expenditure per capita of 90 Euro while Lithuania and Latvia spend less than half and Slovakia a bit more than half (50 Euro). Slovenia spends about 160 Euro per capita in local capital investments. At the lower end of the spectrum is Cyprus and Malta where the public capital investment is very low amounting approximately 0.5% GDP and 2% of GDP respectively. On the contrary, the ratio between local capital expenditure and total local expenditure is the highest in Cyprus and Malta (27.9% of GDP and 30.2% of GDP) reflecting the fact that in Cyprus and Malta local governments do not have significant operating expenditure (e.g. social welfare and education). In most of the other NMS, the ratio is somewhere in between 12% and 20% of GDP, with the exception of Latvia where the ratio is only 8%.

In conclusion, the task of local governments in the CEE region, particularly municipalities, to secure the necessary financing for future capital investments as well as for providing vital services to their communities at European standards has been (and is likely to continue to be) an overwhelming one in short to medium term. This may happen due to changes in the regulatory and institutional framework as it is to be expected given the accession process and the numerous commitments these countries have. Regarding RES-E financing, the author believes that, in a business-as-usual scenario, local communities (together with national governments) alone are unlikely to raise up to the challenge, at least not within a time frame that has any relevance to the 2010 RES-E targets.

Consequently, alternative approaches may be needed to circumvent some of these challenges at local level in short to medium term and to

\textsuperscript{139} Some estimations show that infrastructure investment needs can be somewhere in between 140 and 190 bn Euro for environment and transport alone. See Supra Note 123, pg. 10.

\textsuperscript{140} See Supra Note 123, pg. 10.
increase the share of private financing in capital investments at a pace which would allow the NMS to make one step further (and faster) towards meeting the RES-E targets for 2010 and, in long term, towards a more sustainable development path.

4.5. EU Structural funds, one window of opportunity for investments in RES-E in the new Member States

Structural funds are funds available to EU Member States to reduce disparities in development and promote economic and social cohesion in the European Union. There are four different types of structural funds:

- The European Regional Development Fund (ERDF) contributes mainly to assisting the regions whose development is lagging behind and those undergoing economic conversion or experiencing structural difficulties;
- the European Social Fund (ESF) mainly provides assistance under the European employment strategy;
- the European Agricultural Guidance and Guarantee Fund (EAGGF) Guidance Section helps in both the development and the structural adjustment of rural areas whose development is lagging behind by improving the efficiency of their structures for producing, processing and marketing agricultural and forest products;
- the Financial Instrument for Fisheries Guidance (FIFG) supports restructuring in the fisheries sector.

Over the period 2000-2006, structural funds are to be utilised to achieve three main objectives at the level of European Community:

**Objective 1:** promotes the development and structural adjustment of regions whose development is lagging behind, i.e. whose average per capita GDP is less than 75% of the European Union average.

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This thesis has been written between 2004 and August 2005 and some minor revisions have been made during the first half of 2006. However, the part concerning the structural funds has not generally been updated and therefore the text in this section refers to rules valid for the period 2000-2006, period which remains relevant for the discussion and the model results. However, where necessary, references to very recent legislation adopted are being made. Updates on the EC’s policy concerning the Structural and Cohesion Funds can be found at [http://ec.europa.eu/regional_policy/sources/docoffic/official/regulation/newregl0713_en.htm](http://ec.europa.eu/regional_policy/sources/docoffic/official/regulation/newregl0713_en.htm)

Regulation (EC) No 1260/1999
Objective 2: contributes to the economic and social conversion of regions in structural difficulties other than those eligible for the new Objective 1. Overall it will cover areas undergoing economic change, declining rural areas, depressed areas dependent on fisheries and urban areas in difficulty.

Objective 3: supports the adaptation and modernisation of education, training and employment policies and systems in regions not eligible under Objective 1.

The new Regulations also reduce the number of Community Initiatives from 13 during 1994-99 to four for 2000-06. The new Initiatives are:

- Interreg III, which aims to stimulate cross-border, transnational and inter-regional cooperation;
- Leader+, which promotes rural development;
- Equal, which provides for the development of new ways of combating all forms of discrimination and inequality in access to the labour market;
- Urban II, which encourages the economic and social regeneration of declining towns, cities and suburbs.

The Structural Funds contribute to the different types of assistance as follows:

- The ERDF contributes to financing Objectives 1 and 2, the Community Initiatives Interreg III and Urban II and relevant innovative measures.
- The ESF contributes to financing Objectives 1, 2 and 3, the Equal Initiative and relevant innovative measures.
- The EAGGF Guidance Section contributes to financing Objective 1 and the Leader+ initiative.
- The FIFG contributes to financing Objective 1 and assistance in regions outside Objective 1 up to 0.5% of the total allocation of the Structural Funds, and also to funding relevant innovative measures.

Member States have to submit programming documents to the Commission following its general guidelines. Programming documents can take the form of:

- Community support frameworks (CSFs) translated into operational programmes (OPs): documents approved by the Commission in
agreement with the Member State concerned, which contain both the Member State’s and the Funds’ strategy and priorities for action, their specific objectives, the contribution from the Funds and the other financial resources;

- Single programming documents (SPDs): comprising a single document, approved by the Commission and combining the data contained in a Community support framework and operational programme (integrated regional programme containing the programme’s priorities, a short description of the proposed measures and an indicative financing plan).

The NMS have identified already their priorities to be financed over the period 2004-2006. Table 4.4 in Annex 4.II provides a brief overview of these priorities while Table 4.5 in Annex 4.II provides an overview of the estimated contributions from the EU for various programmes. It is not really surprising that priorities common to most of these countries include improving the business environment and provide a level playing field for small and medium sized enterprises, improving living conditions in rural areas, developing human resource and technology base to address stringent employment concerns and gain competitive advantage, increasing mobility through transport infrastructure development and addressing regional disparity.

But, as described in previous sections, the NMS are also very diverse and the priorities set for this period clearly reflect this status quo. For instance, Cyprus lacks investment in private property and public areas. Due to its small size and specialised economy, in order to reduce its vulnerability to external economic shocks, Cyprus is focusing on rural development (including access to services) while revitalising the economic activity in some urban areas. Malta, with the highest population density in Europe faces a great challenge to manage its resources, and maintain in the same time the share of tourism industry in the overall GDP without increasing the number of tourists. In addition the double insularity of the Gozo Island, poses additional concerns for Malta. Therefore, improving the productivity in agriculture and increase access to essential services (including waste management), in particular in rural areas, are key priorities for Malta. In the Baltic States,

143 A new programming period will start on 1 January 2007 for Member States (it is envisaged that Romania and Bulgaria will also be included).

144 1250 persons per sqkm compared with the European average which is 118.7 persons per sqkm

145 A small island within an archipelago of islands.
unemployment remains high on the agenda and correcting the skill miss match in the labour markets will be a priority in the near future while Slovakia and Slovenia will focus as well on developing their tourism industry. Hungary and Poland seem to face a number of structural challenges (this may explain why the highest level of EU assistance is earmarked for the two countries. While Hungary will need to improve the access to business service for its private sector, Poland is likely to focus on issues concerning the transport infrastructure, improving the human resource and technological base and improve public services (including enhancing the administrative capacity to manage EU assistance funds).

So, at least in theory, structural funds may contribute significantly to alleviate some of the difficulties these countries are faced with but the extent to which these funds can be actually disbursed within a rather short period of time is a different matter. As we shall see from previous experience with pre-accession instruments, the disbursement of this kind of financial assistance depends on one hand on the degree of simplicity of governing regulations established by the European Commission and on the other on countries’ ability to identify in due time investment opportunities and the necessary co-financing as well as to make the necessary administrative arrangements for an adequate management of these funds. In order to be able to fully understand the ability of the new Member States to absorb Structural Funds, it is important to look at some lessons learnt with the pre-accession instruments as they have been largely designed to prepare the NMs to deal with Structural Funds.

4.5.1. Pre-accession instruments: lessons learnt

The pre-accession instruments were implemented based on a concept known as Extended Decentralised Implementation System. Decentralisation in this context means that the European Commission transfers the responsibility to the Contracting Authority in the recipient

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146 The actual expenditure will greatly depend on the country’s absorption power.
147 In Hungary the private sector contribution to GDP is 83%, much higher than the average in Europe. Therefore increasing the efficiency and competitiveness of the private sector is essential for Hungary.
148 There are mainly three instruments: PHARE, ISPA and SAPARD. PHARE was initially designed to assist Poland and Hungary and it has been gradually extended to other accession countries. The main aim of the program was institutional building in particular to prepare the new Member States for the management of the Structural Funds. ISPA is a programme largely focusing on environmental and transport infrastructure while SAPARD supports developments in agriculture and rural areas. For details on these instruments see http://europa.eu.int/comm/enlargement/financial_assistance.htm.
country. As such, the Contracting Authority becomes responsible for tendering and contracting as well as financial and administrative management of the project. The term 'extended' refers to the fact that there is an ex-post control of the spending from the Commission\textsuperscript{149}.

The first ex-post control of the European Court of Auditors\textsuperscript{150} of the projects financed using pre-accession instruments revealed some useful insights concerning challenges associated with this kind of assistance, both from the logistical point of view as well as from the point of view of financial and administrative management in the beneficiary country:

**Weaknesses within beneficiary countries:**

- Audits in 2003 and early 2004 revealed weaknesses in national systems (significant delays in concluding operational agreements between the Central Finance and Contracting Unit and line ministries, lack of staff resources and training, in some cases manuals not yet adopted\textsuperscript{151}, etc);
- Co-financing, in particular parallel co-financing\textsuperscript{152}, seems to be very difficult to monitor and usually the level of co-financing can not be known before the closure audits are being carried out; also some eligibility issue have been identified in some cases; in addition it seems that in some cases the level required has not been provided by the beneficiary country;\textsuperscript{153}
- Two years after the deadline, no country has achieved the minimum system requirements for all national authorities and bodies involved in the management of ISPA (with the exception of Estonia and Hungary in the transport sector) and in some cases systems have been put in place as late as 2004\textsuperscript{154};

\textsuperscript{149} For details see http://europa.eu.int/comm/enlarg/eng/finances/phare/decentralisation.htm


\textsuperscript{151} The contracting under the pre-accession instruments ended in 2003 although contracts may still be concluded until 2006.

\textsuperscript{152} Referring to co-financing, there are two types of co-financing which were possible under the pre-accession instruments. Parallel co-financing is taking place when partners finance different parts of the project, possibly at different times and related expenses are made separately. Joint co-finance is usually when payments are made simultaneously by the partners.

\textsuperscript{153} See Supra Note 150, pg.261, §8.34

\textsuperscript{154} See Supra Note 150, pg. 255, §8.10
Difficulties in attracting and keeping qualified personnel which makes national structures heavily dependent on expensive external consultancy\(^{155}\);

- Public procurement procedures did not at times follow the standards required but the Commission acknowledged that this is an area of risk even in the old Member States;
- Under SAPARD, potential beneficiaries lacked financial resources or had difficulties in obtaining credit and most of them were faced with heavy administrative procedures; the observed tendency under SAPARD was to focus on financially strong firms and farms with access to capital markets and take little notice of small organisations\(^{156}\);

- Under the PHARE program, the attempt to introduce multi-annual programming has been considered both by the European Court of Auditors as well as the Commission itself as unsuccessful; the reason, as highlighted by representatives of the European Commission, had to do with the country’s ownership of the process to establish sound management systems;

Procedural weaknesses (on the side of the European Commission)

- With respect to payments under the ISPA, there have been unclear rules established by the European Commission concerning the definition of “commencement of work”. Under ISPA regulations, if substantial work did not commence after two years from the moment the assistance has been granted, the grant shall be cancelled. However, these regulations proved rather unrealistic in the case of many big investment projects. The Commission adopted in some of such cases a “creative” approach and considered as proxy to ‘substantial work’ the launch of a tendering procedure\(^{157}\).

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\(^{155}\) This was also the author’s finding when she was involved in assessing the PHARE program for Environment and Energy in Romania in her capacity as local consultant for ERM (UK) on behalf of the Regional Environmental Centre for Central and Eastern Europe (Hungary). For details see Environmental Resources Management (ERM), “An evaluation of Phare-financed energy and environment programmes; inventory report”, report prepared for the Evaluation Unit of the Joint External Relations Service of the European Commission, September 1999, UK.

\(^{156}\) See Supra Note 150, §8.50

\(^{157}\) This can be particularly relevant for some renewable projects.
- With respect to SAPARD payments, the VAT treatment may rise some issues once the closure audit is being carried out\footnote{158};
- In case of the SAPARD programme, due to deficiencies in planning at the level of the EU, to some extent for objective reasons, budgets were grossly overestimated and in the first four years of the program only 14.5% of the funds have been disbursed with more than half finally paid to beneficiary countries only in the last quarter of 2003. As a consequence, delays and implementation problems occurred and, according to the European Court of Auditors, the SAPARD programme did not achieve its main objectives;\footnote{159}

Although some of these deficiencies have been corrected already or measures are being taken for improvements, experience with pre-accession assistance shows that the disbursement of EU assistance in the new Member States may not go smoothly, in particular in rural areas. The huge administrative burden corroborated with insufficient capacity in the beneficiary countries to ensure adequate monitoring and a sufficient level of co-financing, could trigger delays in disbursements or even a significant loss of funds if work can not be contracted on time.

4.5.2. Structural Funds: one option to finance renewable energy sources in the new Member States

As it was explained at the beginning of the section, the NMS are very diverse and therefore it is to be expected that they will continue to focus on issues that are most relevant to their national circumstances. With respect to renewable energy sources (and energy efficiency as a complementary option), although the issue could be addressed virtually under most of the priorities, only few countries have specifically mentioned them in their programs (see Table 4.4 in Annex 4.II): Hungary (under EIOP, priority one), Malta (Objective 1 programme, priority one) and Slovakia (under ISOP Programme, priority one).

\footnote{158 As a general rule (which also applies to Structural Funds), VAT constitutes eligible expenditure (therefore can be reimbursed) only if it is not recoverable according to the regulations of the beneficiary country. Under SAPARD, an additional rule applied which basically said that VAT payment should not bear disproportionately on any part of the programme. In the case of Poland in particular, it remains unclear to date whether the reported VAT expenses constitute or not a significant part of the program.}
\footnote{159 See Supra Note 150, §8.47}
In the author’s opinion, it is rather unlikely that other countries would not take the opportunity and use structural funds to finance renewable energy (and energy efficiency) projects even if this is not a stated goal in their programmes. The author believes that part of the funds targeting rural development, SME support or tourism at the minimum, could be channelled towards renewable investments. *Table 4.6* below shows the author’s own estimations of possible available funds for RES-E financing from structural funds:

### Table 4.6 Estimated amounts of structural funds that can be allocated to finance renewable energy projects in the new Member States

<table>
<thead>
<tr>
<th>Country</th>
<th>Program/ Priority</th>
<th>Total Str. Funds available for specific priority (€ Mill.)</th>
<th>% A potentially available to financing RES-E</th>
<th>Structural Funds potentially available for RES-E (€ Mill.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyprus</td>
<td>Objective2 Programme/ Priority one</td>
<td>18.49</td>
<td>10</td>
<td>1.849</td>
</tr>
<tr>
<td></td>
<td>(very ambitious target, high dependency on imported fossil fuel, important to increase productivity in rural areas, lack of adequate data on potentials)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>Objective1 Programme/ Priorities 2 and 3</td>
<td>142.456</td>
<td>10</td>
<td>14.245</td>
</tr>
<tr>
<td></td>
<td>(very ambitious level, high dependency on indigenous oil shale)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>EIOP/Priority</td>
<td>98.7</td>
<td>5</td>
<td>4.935</td>
</tr>
</tbody>
</table>

Most countries will most likely use some of the structural funds to finance RES in the heating sector or biofuel production, neither of which is the subject of this thesis. The estimations are qualitative and have been made to support the discussion in the subsequent section and also to provide some sort of a benchmark for the model results. Estimations have been made taking into consideration the ambition level for the RES-E implementation by 2010, its specific energy supply situation, RES-E potentials and other country specific conditions.
<table>
<thead>
<tr>
<th>Country</th>
<th>Target</th>
<th>Objective</th>
<th>Priority</th>
<th>Duration (%)</th>
<th>Amount (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latvia</td>
<td>(ambitious target, diversified energy supply including nuclear and gas options, lack appropriate access to business services in short to medium term)</td>
<td>1 (stated objective)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lithuania</td>
<td>(ambitious target, energy system based on hydro and gas, dependent on el imports in dry years)</td>
<td>Objective 1 Progr /Priorities 2 and 4</td>
<td>272.1</td>
<td>5</td>
<td>13.605</td>
</tr>
<tr>
<td>Malta</td>
<td>(very ambitious target, lack of adequate data on potentials, isolated system based on fossil fuels, high dependency on fuel import, urgency to improve rural productivity, save and find alternative energy sources)</td>
<td>Obj.1 Progr./Priorities 1, 3 and 4</td>
<td>46.5</td>
<td>10-15</td>
<td>4.65-6.975</td>
</tr>
<tr>
<td>Poland</td>
<td>(very ambitious target, high potential in biomass, coal-based electricity generation, lack of adequate business services in short to medium term, lack of absorption capacity)</td>
<td>IROP/priority 3 ICEOP/priority 2</td>
<td>1456.3</td>
<td>8 - 10</td>
<td>116.504 - 145.63</td>
</tr>
<tr>
<td>Slovakia</td>
<td>(very ambitious target, diversified electricity generation but with</td>
<td>ISOP/priority 1 (stated objective), 2 (potential)</td>
<td>272.95</td>
<td>10-15</td>
<td>27.295 - 40.94</td>
</tr>
</tbody>
</table>
nuclear issues to solve, high regional disparities and rural character)  

BIOP/priority 3 (potential)  
Obj.2 Bratislava Program/priority 1 (stated objective)  

Slovenia (ambitious target, electricity supply based on nuclear, hydro and coal, weak knowledge transfer from research community to the business sector, climate change issues)  

Obj.1 Programme/priority 1 and 3  

<table>
<thead>
<tr>
<th></th>
<th>154.6</th>
<th>5</th>
<th>7.73</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total 1 (low estimates)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total 2 (high estimates)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total 1 (low estimates)</td>
<td>261.263</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total 2 (high estimates)</td>
<td>341.584</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The rough estimation presented in Table 4.6 above shows that some €250Million to €350Million could be potentially available from the Structural Funds (mainly ERDF and EAGGF) to finance renewable energy projects in the NMS, funds that can be committed before the end of year 2006. In addition somewhere in between 2 and 4 % of the EU assistance (additional to funds earmarked for specific priorities) can be spent on technical assistance (TA) and financial resources from other EU Programmes could be available through various Community initiatives (see Table 4.7 in Annex 4.II). These funds could support the implementation of renewable energy projects by enhancing local administrative capacity, cross-border experience sharing and strengthening labour markets.

In addition to the Structural Funds, other financial assistance is available to the new EU Member States, namely the Cohesion Funds. Cohesion Funds are designed to improve the environment and develop the transport infrastructure in the Member States. Unlike Structural funds which support national programmes, cohesion funds are project-oriented.

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161 These funds have not been included by the author in her estimations presented in Table 4.6 above.
assistance and could cover up to 80 to 85% of the total eligible expenditure. As Table 4.7 in Annex 4.II shows, the amount of EU assistance from cohesion funds and community initiatives for all new Member States, for the period 2004-2006, is around €9.5billion, part of which could be used to co-finance renewable energy projects. As already discussed, the actual disbursements will however depend on countries’ ability to absorb the funds as both structural funds and cohesion funds will have to be matched by domestic funds, public and private. Concerning the combination of more instruments for the same system, the Guide to the Cohesion Fund 2000-2006\(^{163}\), says that “The Regulation excludes combining assistance from the ERDF and the Cohesion Fund for the same expenditure. Involvement of the ERDF and the Cohesion Fund on the same project should also normally be avoided. Assistance from two instruments towards the same system can be envisaged provided that advance planning allocates a separate role to each”.

It is the author’s understanding that there might be opportunities to combine the Cohesion Fund with other structural funds (in particular with ERDF), provided that there is a clear strategy in the beneficiary countries with respect to the investment projects that may require such a combination. For the NMS, given the challenges in finding co-financing, such combination might prove to be instrumental in getting strategic projects off the ground in due time.

In any case, the total EU assistance from structural and cohesion funds is also limited by the beneficiary country’s economic performance as it should not exceed 4% of the country’s GDP in order to avoid market distortions. Therefore the path of economic development in these countries also matters in determining how much of the available funds will actually be disbursed. As discussed at the beginning of this chapter, international developments (in particular with respect to oil prices), events in Western European economies and elsewhere coupled with the extent to which NMS will be able to address domestic structural issues, will have a significant impact on the pace of economic recovery in these countries and therefore on their capacity to absorb EU financial assistance. It is the author’s belief that in short to medium term, we may see lower GDP growth rates in these countries as it used to be the case over the last couple of years.

In longer term, the EU priorities for assistance are likely to follow the Lisbon agenda for the programming period, 2007-2013. Many of the priorities with relevance to RES development will most likely to continue to top up the European agenda and may include innovation and development of knowledge based economy, environment and risk prevention, improvement of services of general economic interest, rural, urban and coastal development as well as further strengthening of the SME sector. Consequently, it seems important to look for creative ways to use the opportunity offered by the EU assistance programmes to address strategic needs in the NMS, one of which is and should remain the acceleration of the RES-E deployment in the region. In the section below, such a recommendation is being provided.

4.6. **Some answers to the ‘who’ and ‘how’ questions:**
**author’s recommendations**

The NMS have made remarkable efforts to bring about fundamental transformations in the economy and the society at large that have irreversibly changed the mind-set in this region. By participating in the EU common market, and even more so in a monetary union, new Member States are likely to enjoy in long run, greater economic stability and lower costs due to diminished transaction costs and costs related to foreign exchange. In short to medium term however, to achieve simultaneously independent monetary policy, capital mobility (no capital controls) while having pegged exchange rates, might prove a daunting task if not impossible.

Like in the EU-15, the labour market remains a fulcrum for the future economic development and the NMS need to focus on increasing labour productivity and capacity utilisation in order to avoid the wage spiral which remains a significant risk in the region. Containing the phenomenon of informal economy could provide these countries with additional revenues to the public budget while contributing in the same time in alleviating other social problems at local level.

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The relatively limited experience of local governments, in particular municipalities, and a legal/accounting framework that often hampers local initiatives, may explain the low levels of local borrowing and consequently the stage of infancy of municipal capital markets. Although local public spending should remain in check in the NMS for reasons explained earlier in the Chapter, the huge capital investment needs and the opportunity offered by the new EU financial assistance may require a shift to market oriented practices. Local financial institutions can play a crucial role in supporting local governments in their quest for new capital provided that they improve at minimum their risk management strategies.

When it comes to renewable energy projects, understanding the underlying risks is essential. The cost of financing and the structure of the financial plan depend fundamentally on the ability to distinguish between risks that are inherent to the market and risks that are specific to renewable projects. While the risks in the former category are relatively well understood - and therefore financial institutions (including local banks) and investors have extensive knowledge on how to deal with it- the ones in the latter category are less familiar and therefore further capacity building may be needed at all levels - from the local banks to international financial institutions, private investors and governments (including local governments) – to enhance the understanding and facilitate the identification of adequate risk-sharing schemes.

Hence, adequately identifying and managing risk is becoming not just an additional skill for those who would like to stay competitive today but a necessity for all those who would like to survive in the economies of tomorrow.

EU financial assistance is providing an excellent opportunity to boost renewable energy generation but also a challenge. Given the various priorities the NMS have and the previous experience with pre-accession assistance, it might be needed to identify new, creative ways to absorb this assistance.

In the author’s view, one such creative way is the use of a part of the EU financial assistance in risk capital investments. The idea has been already raised by the author in various forums in 2004. In particular, the question has been raised with Mr. Eddy Hartog, Head of the unit, Directorate general for regional policy during the internet-based conference on Local Energy Action, Brussels, 22-24 October 2004. Transcripts of
the EC for risk capital\textsuperscript{166} (and which applies for the purpose of this paper), is equity financing for start-up companies or for companies which are in the development phase. There are several reasons why the author believes that by diverting a share of the Structural and Cohesion Funds to risk capital financing\textsuperscript{167} could fill in an important gap in financing RES projects, in particular RES-E given the relative short period of time the NMS have to meet their 2010 commitments.

Probably the most important reason is that it could boost this type of financing in the region. Before the accession, the region was largely out of the sight for venture capitalists for reasons that might have included small and illiquid equity markets, inadequate legislation governing equity markets, more appealing returns elsewhere, precarious corporate governance (which in turn may require excessive due diligence), etc. A survey conducted by the European Venture Capital Association (ECVA) among its members back in 2004\textsuperscript{168}, revealed that 75% of its members did not have experience with investments in the region while the remaining 25% tend to invest more in later development stage, expansion, buyout and replacement (70%) and only 5% in early stage development\textsuperscript{169}. Because of the accession and the tremendous work that has been already carried out in these countries to align the legal and institutional framework to Western Europe, triggered an increased appetite of venture capitalists to expand their investment in the region. This trend seems to be supported by the ECVA’s survey. A staggering

\textsuperscript{166} EC, "Risk capital: a key to job creation in the European Union", March 1998.

\textsuperscript{167} Approximately one year and half after writing this section, the EC adopted new regulations concerning the spending of the Structural Funds for venture capital financing. One such regulation is the Council Regulation (EC) No. 1083/2006 of 11 July 2006, laying down the provisions on the European Regional Development Fund, The European Social Fund and the Cohesion Fund and repealing Regulation (EC) No. 1260/1999, published in OJL 210/28 from 31 July 2006. According to Art.44, "[…] the Structural Funds may finance expenditure in respect of an operation comprising contributions to support financial engineering instruments for enterprises, primarily Small and Medium Sized ones, such as venture capital funds, guarantee funds and loan funds and for urban development funds, that is, funds investing in public-private partnerships and other projects included in an integrated plan for sustainable urban development." In addition, recognizing the need to increase access to finance for the SMEs, the EC recently adopted new guidelines on applying risk capital financing to SMEs which are likely to support the idea promoted by the author in this thesis, namely to use part of the Structural Funds for risk capital financing in RES sector. For details on the guidelines, see “Community guidelines on State aid to promote risk capital financing for small and medium sized enterprises” adopted on 19 July 2006.

\textsuperscript{168} EVCA Barrometer, April 2004, www.evca.com

\textsuperscript{169} Ibid 168, pg.2
83% of the respondents said that they plan to invest in CEE countries in the future. An increase share of EU financing in this market is likely to bring about more liquidity and probably an increase in the investor confidence in the region. Depending on the arrangements made for these funds to be partly spent in risk capital financing, the initiative may be conducive to the creation of a network of private equity and venture capital investors which seems to be largely missing in the region.

Participation in risk capital financing could also assist the European Commission in achieving a multiplier effect, one of its stated objectives with respect to structural funds. In addition, by providing support to new small and medium sized enterprises, in particular in the RES sector where they are expected to play an increasingly important role, the deployment of such technologies in the region could be significantly accelerated.

Finally, such a public-private ‘partnership’ would certainly improve, in the author’s opinion, the ability of decision makers to familiarize with financial markets and market-oriented mechanisms to achieve strategic investment objectives.

Evidently, there are few important benefits to be achieved but given the situation in the region, in particular with respect to the ability of the public sector to play the financial markets (therefore limited ability to arrange co-financing), the author is well aware that there are also greater risks to be assumed. So the impact of the EU financial assistance that could potentially be used will largely depend on the business model chosen for this particular purpose. Given the relatively limited scope of this paper, the discussion in the following paragraphs will focus on some ideas that could be used to build up a business model. The author is well aware that further research will be needed to fill in the logistical, legal and fiscal gaps that will certainly surface during such a process and which are far beyond the limited scope of this paper.

In Table 4.6, the author presented a rough estimation concerning the share of structural and cohesion funds that could be used to boost the energy (electricity) production from renewable energy sources. The figures presented are indicative in nature (for the sole purpose to provide an assessment of the investment scale) and should not be regarded in

176 See Supra Note 168, pg.3
any other way. Having said that, one important conclusion that can be drawn is that for most of the countries, with the exception of Poland, the amount is relatively small. Poland on the other hand, exhibits significant difficulties in managing such funds, fact recognised by the European Commission and probably constitutes the reason why Poland is being offered a relatively high share of technical assistance money to improve the national management system.

So, in the author's opinion, the share of EU assistance that can be used for risk capital financing, could be centralised in a fund and managed by a specialised organisation. The participation in the fund will be proportional with the contribution earmarked for each country and the share negotiated between the respective country and the European Commission on a bilateral basis. The negotiated share can be based on assessments presented by the beneficiary country based on strategic energy and integrated development plans. Here the author would like to briefly elaborate on the issue of “integrated development plans” to be understood for the purpose of this thesis. For some years now, the author advocated for a “baseline” approach to research in renewable energy. This approach distinguishes from the usual scenario approach in the sense that, when elaborating the benchmark (the equivalent of what many people call business-as-usual scenarios), one should include not only a partial analysis (for instance energy demand scenarios) but an analysis that integrates other aspects such as building design, waste management, land use, fuel supply and other elements of urban and rural development. After this benchmark is calculated, a different scenario (maybe coupled with a series of sensitivity analysis) can be defined to include best practices in sustainable development (e.g. sustainable architecture, sustainable transport, sustainable energy supply, etc). In this way, the author believes, the benefits of pursuing sustainable development in general and renewable technology in particular, are likely to become more visible not only to experts but to the public at large. In addition, this sort of exercise would most likely be conducive to a more coherent approach to urban and rural planning. Fortunately, tools already exist today\footnote{For energy planning, the well-know Long range Energy Alternative Planning model has been updated in 2006 with new features. Among the most relevant ones, the Application Programming Interface (API) which now allows LEAP model to read and exchange data with other applications. This feature will enable LEAP users to use the LEAP model in combination with other models to evaluate various sustainable scenarios. The new version of the RETScreen model, which should be} for such a planning to be possible and China may already be on the way to prove its value\footnote{For energy planning, the well-know Long range Energy Alternative Planning model has been updated in 2006 with new features. Among the most relevant ones, the Application Programming Interface (API) which now allows LEAP model to read and exchange data with other applications. This feature will enable LEAP users to use the LEAP model in combination with other models to evaluate various sustainable scenarios. The new version of the RETScreen model, which should be}.\footnote{For energy planning, the well-know Long range Energy Alternative Planning model has been updated in 2006 with new features. Among the most relevant ones, the Application Programming Interface (API) which now allows LEAP model to read and exchange data with other applications. This feature will enable LEAP users to use the LEAP model in combination with other models to evaluate various sustainable scenarios. The new version of the RETScreen model, which should be}
In this way, countries retain full control over the process but the investment is decoupled from electoral cycles and focuses on long-term objectives. Further on, ‘daughter’ funds could be established either in each individual member state or to serve clusters of countries that developed over time due to natural historical and economic traditions (e.g. the Baltic States, Visegrad Countries, Cyprus and Malta, etc) to attract further private financing. The participation of the EU in the central fund could be on the basis of ‘first loss/last reward’. In other words, the return on the EU part of the investment will be rewarded only after the return on private investment has been rewarded. In the event of erosion of the fund’s capital base, the EU investment suffers the first loss. In this way, the investment is being made more attractive for private investors. In addition, the EU could also put a cap on its return, to boost expectations of higher returns for the private investors.

Such organisations capable of managing the central fund may exist already and very little would need to be designed from scratch. In the author’s view, one possibility for instance is the Council of Europe Development Bank (CEB). The bank has been founded back in 1956 as a separate legal entity from the Council of Europe and has an Aaa rating. The CEB lends exclusively to banks or public entities by means of loans and guarantees, limiting participation to 50% of a given project. Concerning its purpose, the CEB is the only development bank with a purely social vocation, which is, in the author’s opinion, what renewable

available by the end of 2006, includes new RES options for heating and cooling. In addition various supply options such as grid-connected, mini-grid and off-grid options can be studied. The new version of HOMER model allows a detailed study of RES hybrids and calculations of air emissions in various supply options.

172 During the 9th World Renewable Energy Congress held in Florence (Italy) late August 2006, Dr. Chris Luebkeman, Director of Global Foresight + Innovation, presented an interesting project his company is involved in which is expected to develop in China, in the Dongtan region. From subsequent conversations on the issue, the author understood that this project may have followed precisely this sort of “baseline” approach and that by applying sustainable urban planning the overall energy demand forecast for the region has been halved compared to a conventional approach. At the moment of writing this, the author still awaits details on these calculations but, if the understanding is indeed correct, that the project might very well prove that thinking outside the conventional box could bring significant benefits to local communities.

173 The scheme could probably work in the same manner as the UK Regional Venture Capital Funds. In the UK, there are several regional funds for which the UK government, through its initiative for small enterprises, provides equity financing. Together with equity financing from the European Investment Fund, these resources make up for 50% of the total necessary financing. The other 50% comes from private investors. The UK government placed a cap on its return to boost the expectations for higher returns of the private investors and the EIF. In the event of an erosion of a fund’s capital base, the UK gov. investment suffers the first loss.
projects should address\textsuperscript{174}. The bank seems to have a wide experience with countries that have to focus as well on social issues\textsuperscript{175}. In addition, the Bank seems to place Central and Eastern Europe at the core of its strategy for the near future. A number of bank’s projects are being extended in close cooperation with the European Union and other financial institutions such as the European Bank for Reconstruction and Development (EBRD), the NIB, the World Bank and the European Investment Bank. Several bilateral and multilateral memoranda of understanding have been signed recently with the aim to reinforce this cooperation\textsuperscript{176}. Also, the bank seems to have another rather unique feature concerning risk management. In 2003, the bank also created the Organization and Operational Risk Committee (OORC). This body, chaired by the governor, makes decisions regarding operational risk, internal procedure and business continuity plan\textsuperscript{177}. Again, the author would like to stress that due to the limited scope of this paper, not all aspects have been thoroughly investigated and further research, maybe in collaboration with experts from the European Commission and the bank itself will be needed in order to design an appropriate business model. The second important issue to be considered in designing such a business model is how to accommodate state aid rules and risk capital financing\textsuperscript{178} which involves public money.

Thirdly, one issue that most likely would need a careful consideration is the issue of revenue recycling. In contrast with the traditional way of spending EU assistance funds, risk capital financing will not produce immediate financial benefits. It is common that new companies or companies in early stage of development, incur losses or they do not operate at profit in their first years of existence. There is also the success rate. Not all companies financed this way will eventually turn into profitable entities therefore a failure rate is normally being considered. The benefits of using this type of financing are likely to become visible in medium to long term. By having a specialised organisation managing

\textsuperscript{174} See also discussion on the green value and the discussion on the green value as private good with social benefits.

\textsuperscript{175} For details on the bank’s activity see www.coebank.org


\textsuperscript{177} See Supra Note 176, pg. 3.

\textsuperscript{178} Guidelines are provided in EC 2001/C 235/03 from 21 August 2001, www.europa.eu.int. A good practice on this topic can be found in the EC Letter to the German State concerning State Aid case N 551/2000, concerning equity capital for small technology enterprises (BTU). The official document remains the one in German language. The original title is Staatliche Beihilfe N 551/2000 « Beteiligungskapital für kleine Technologieunternehmen (BTU) », SG (2001) D/286560

238
the investment portfolio, transaction costs will most likely be lower and
the risk significantly diminished while the beneficiary countries, especially
given the insufficient human resources, are likely to save on costs (e.g.
foreign consultancy which would otherwise be employed in elaborating
business plans) and would end-up with well managed infrastructure
projects that respond to their long-term needs implemented in a shorter
period of time that would otherwise be the case. Their participation in the
investment decision making process could be negotiated based on their
participation in the fund and requirements for the fund management to
provide adequate training for specialists in the beneficiary countries
could also be sought of.

Finally, in the author’s view, such an exercise could also be used to
explore options to transform the investment cycle into a positive vicious
cycle using adequate fiscal instruments. Again, the author is well aware
that further research is needed to properly investigate the impact of
various fiscal instruments to renewable projects, task which is beyond
the scope of this thesis. Nevertheless, the author would like to suggest
some issues that could be picked up on at a later stage.

As discussed earlier in this chapter, given the benefits that renewable
energy projects could bring about especially for local communities, it is
important that local communities engage actively in their development.
One possibility, in the author’s opinion, could be to create a positive
vicious investment cycle, by applying tax exemptions/reductions for
dividends from such projects or on the revenues associated with the
green value of the energy (electricity) produced from renewable energy
sources\(^\text{179}\) in case of a purely public financed project. Alternatively, it
may be possible to make arrangements on a contractual basis that
revenues from trading the green value of energy (electricity) produced
from renewable energy sources to be reinvested in projects that support
the sustainable development of the respective local community. For
projects financed with EU assistance, guidelines are already in place for
such a model. For instance, in the Guide to Cohesion Funds 2000-

\(^{179}\) Which is basically the value traded today through green certificates but which can be further
evaluated once results from a more consistent research on the full benefits of renewable energy
become available. For this purpose, the definition in the national legislation of the green value of
electricity (energy) generated with renewable energy sources may be necessary, in a way similar with
the climate change process and the recognition of CO2 as a pollutant. From accounting purposes, this
might help in the treatment of the green value as an intangible asset as emission reductions are being
seen today. To this end, the author recognises that more research will be needed on this issue but this
exercise would go far beyond the scope of this paper.
2006\textsuperscript{180}, in the Annex D concerning the financing of revenue-generating projects, the European Commission recommends that in case the project revenue exceeds the level initially envisaged\textsuperscript{181}, the grant assistance will be accompanied by a clause stating that either the level of assistance will be reduced or revenues must be reinvested in investments for the same purpose. In the author’s opinion, by allowing the exceeding revenue to be reinvested in investments with similar purpose would generate a positive investment cycle. The challenge may be in the definition of the term ‘same purpose’. The term could be interpreted narrowly such as other renewable energy projects or with a broader perspective such as projects that address priorities for sustainable development of the respective community.

\textsuperscript{180} See Supra Note 164.
\textsuperscript{181} Usually in project financing, the calculation of the net present value of the project takes into account estimations of project revenues. In case of electricity projects, normally the electricity price (rate) is negotiated in advance with the relevant authorities. A renewable project however may incur additional revenues from selling the green value of the electricity/energy produced, value that can not be estimated beforehand during the financial closure period.
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Other resources


Investor Guide Daily, Tuesday, 7th December 2004

Information on the Council of Europe Development Bank (COE), www.coebank.org


Transcript of the on-line discussion the author had during the internet-based conference on Local Energy Action, Brussels, 22-24 October 2004 with Mr. Eddy Hartog, Head of the unit, Directorate general for regional policy on the use of Structural Funds for risk capital financing, was available, at the time of writing this paper, on http://www.managenergy.net/conference/2004.html. The transcript is also on file with the author.
The On-Grid Finance Continuum

<table>
<thead>
<tr>
<th>Often Secured</th>
<th>Developers/Sponsors</th>
<th>Corporate/Project</th>
<th>Insurance</th>
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<tr>
<td></td>
<td>Equity</td>
<td>Financed Loans</td>
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<td>Occasionally Secured</td>
<td>Grants</td>
<td>Mezzanine Finance</td>
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<td>Gaps and Barriers</td>
<td>Under-financed Project Developers</td>
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<td>Widening Debt/Equity Gap</td>
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<td>Bankers Lacking Experience with RE</td>
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<td>Elevated Transaction Costs</td>
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<td>Proposed Interventions</td>
<td>Contingent Project Development Grants</td>
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<td>Public Participation in BPE Equity Funds</td>
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<td>Tax Incentives for 3rd Party Investors</td>
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<td>Public Participation in Mezzanine Funds</td>
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<td>Investor Training and Awareness raising</td>
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<td>Investment Transaction support</td>
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<td>Lack of Appropriate Risk Management Instruments</td>
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<td>Non-Traditional RE Risks</td>
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<td>Lack of Actuarial Data - Difficulty Assessing Risks</td>
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<td>Inflexible Underwriting Mandates</td>
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<td>Change underwriter risk participations and rating methodologies</td>
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<td></td>
<td>Extend existing insurance products to RE</td>
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<td>Promote new non-insurance products</td>
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<td></td>
<td>Public/Private partnerships to share risks and costs/benefits of innovation</td>
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</table>
The Off-Grid Finance Continuum

**Upstream**
- Start-up Capital
- Operating Capital
- End-user Finance

**Often Secured**
- Entrepreneurs
- Equity

**Occasionally Secured**
- Grants
- Bank Loans

**Gaps**
- Lack of Business Development Support
- Lack of Seed and Early Stage Risk Capital
- Lack of Appropriately Priced Growth Capital
- Lack of Support from LOCAL Banks in Local Currency

**Proposed Interventions**
- Enterprise Development Services
- Support to local banks through capacity building, lines of credit and credit enhancements
- Public/Private Seed Growth Capital Funds
- Support for additional seed capital from additional sources

**Supplier Credit**
- Lack of Consumer/MicroTransaction Finance to Pay for RE Products and Services
- Micro Credit
- Leasing/Finance/ Fee for Service
- 3rd Party Finance
Table 4.4 Priorities for the new Member States concerning the structural funds for the period 2004-2006 *(excerpts from Single Programming Documents)*

<table>
<thead>
<tr>
<th>Country</th>
<th>Objective 1</th>
<th>Objective 2</th>
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<tbody>
<tr>
<td>Cyprus</td>
<td>P1 Sustainable rural development (SMEs, access to services)</td>
<td>P1 Sustainable rural development (SMEs, access to services)</td>
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<tr>
<td></td>
<td>P2 Regeneration of urban areas in decline</td>
<td>P2 Regeneration of urban areas in decline</td>
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<tr>
<td>Estonia</td>
<td>P1 HR development</td>
<td>P1 HR development</td>
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<td></td>
<td>P2 Competitiveness of enterprises</td>
<td>P2 Competitiveness of enterprises</td>
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<td>P3 Agriculture, fisheries and rural development</td>
<td>P3 Agriculture, fisheries and rural development</td>
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<td>P4 Infrastructure and local development</td>
<td>P4 Infrastructure and local development</td>
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<td>Hungary</td>
<td><strong>OPRD</strong>&lt;sup&gt;182&lt;/sup&gt; P1 Tourism development (included tourism related services)</td>
<td><strong>OPRD</strong>&lt;sup&gt;182&lt;/sup&gt; P1 Tourism development (included tourism related services)</td>
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<tr>
<td></td>
<td>P2 Development of regional infrastructure and communal environment (mainly transport and educational facilities)</td>
<td>P2 Development of regional infrastructure and communal environment (mainly transport and educational facilities)</td>
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<td></td>
<td>P3 HR development (strengthening local capacity)</td>
<td>P3 HR development (strengthening local capacity)</td>
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<td><strong>EIOP</strong>&lt;sup&gt;183&lt;/sup&gt; P1 Env. Protection (water management, increasing the share of energy efficiency and RES)</td>
<td><strong>EIOP</strong>&lt;sup&gt;183&lt;/sup&gt; P1 Env. Protection (water management, increasing the share of energy efficiency and RES)</td>
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<td>P2 Transport infrastructure development</td>
<td>P2 Transport infrastructure development</td>
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<td><strong>ECOP</strong>&lt;sup&gt;184&lt;/sup&gt; P1 Investment promotion (consultancy in establishing business models)</td>
<td><strong>ECOP</strong>&lt;sup&gt;184&lt;/sup&gt; P1 Investment promotion (consultancy in establishing business models)</td>
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<td>P2 SME Development (access to business services and cooperation within the SME community)</td>
<td>P2 SME Development (access to business services and cooperation within the SME community)</td>
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<td>P3 R&amp;D (including spin-off companies)</td>
<td>P3 R&amp;D (including spin-off companies)</td>
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<td>P4 ICT Development</td>
<td>P4 ICT Development</td>
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<sup>182</sup> Operational Programme for Regional Development  
<sup>183</sup> Environmental Protection and Infrastructure Operational Programme  
<sup>184</sup> Economic competitiveness operational programme
<table>
<thead>
<tr>
<th>Country</th>
<th>P1 Promotion of territorial cohesion (infrastructure and accessibility)</th>
<th>P2 Promotion of enterprise and innovation (partnerships, business infrastructures)</th>
<th>P3 HR Development and employment</th>
<th>P4 Rural Development and fisheries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latvia</td>
<td>P1 Dev. Social and economic infrastructure (energy transport and health infrastructure)</td>
<td>P2 HR Development</td>
<td>P3 Development of the productive sector (business development, new technologies)</td>
<td>P4 Rural and fisheries</td>
</tr>
<tr>
<td>Lithuania</td>
<td>P1 Strategic investments and strengthening competitiveness (water and waste management, biodiversity and RES, transport, education, business service for ind., support for SME manufact.)</td>
<td>P2 HR Development</td>
<td>P3 Rural development and fisheries (improving the productivity and marketing in agriculture, increase fisheries)</td>
<td>P4 Regional development for Gozo (transport, education, tourism)</td>
</tr>
<tr>
<td>Malta</td>
<td>IROP</td>
<td>P1 Infrastructure to enhance competitiveness of regions (transport, high level education and R&amp;D, hospitals; co-financed with Cohesion Funds)</td>
<td>P2 HR Development</td>
<td>P3 Local development (transport infrastructure, ec revitalisation, env. Measures, tourism and cultural heritage)</td>
</tr>
<tr>
<td>Poland</td>
<td>Iceop</td>
<td>P1 Knowledge based economy (HR development in business services)</td>
<td>P2 Direct support to enterprises (investment support, greenfield and expansion)</td>
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</tr>
</tbody>
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185 Integrated Regional Operation Programme  
186 Improvement of Competitiveness of Enterprises Operational Programme
<table>
<thead>
<tr>
<th>Operational Programme</th>
<th>Countries</th>
<th>Focus Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1 Balanced transport infrastructure</td>
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<td></td>
</tr>
<tr>
<td>P2 Safer road infrastructure</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TAOP</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1 Building capacity to administer EU assistance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P2 Support for IT system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P3 Dissemination and information about the structural funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Slovakia</strong></td>
<td>ISOP</td>
<td></td>
</tr>
<tr>
<td>P1 Improving competitiveness of industry and services using domestic growth potential (investment support for new and existing enterprises, energy efficiency and RES-hydro, solar, geothermal and wind)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P2 Tourism development (improving services in the tourism industry)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BIOP</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1 Transport infrastructure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P2 Environmental infrastructure (water management, technologies that comply with air pollution standards)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P3 Local infrastructure (public infrastructure, health, education, ICT, services in rural areas, etc)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Slovenia</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1 Promotion of the productive sector and competitiveness (support to SMEs to develop technology networks and tourism)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P2 HR Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P3 Restructure of agriculture, forestry and fisheries (modernisation of agricultural farms, marketing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bratislava Programme</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1 SME development (R&amp;D, energy efficiency and clean technologies, business services, revival of economic activities)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P2 Tourism and leisure activities (creation of municipal networks, tourism services, ICT, improve accommodation quality, etc)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P3 Preservation of cultural heritage and rural environment (buildings and public spaces rehabilitation, leisure, etc)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

187 Transport Operational Programme
188 Technical Assistance Operational Programme
189 Industry And Services Operational Programme
190 Basic Infrastructure Operational Programme
Table 4.5 Total contributions from the EU through various types of structural funds

<table>
<thead>
<tr>
<th>Country</th>
<th>ERDF % of total EU</th>
<th>ESF € Mil.</th>
<th>% of total EU</th>
<th>EAGGF € Mil.</th>
<th>% of total EU</th>
<th>FIG € Mil.</th>
<th>% of total EU</th>
<th>Total EU € Mil.</th>
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</thead>
<tbody>
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<td>Cyprus</td>
<td>100</td>
<td>28.02</td>
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<td>Estonia</td>
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<td>20.49</td>
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<td>56.8</td>
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<td>305.7</td>
<td>14.94</td>
<td>53.7</td>
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<td></td>
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<td>1115.51</td>
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<tr>
<td>Latvia</td>
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<td>369.2</td>
<td>22.17</td>
<td>138.7</td>
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<td>19.69</td>
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<td>13.73</td>
<td>122.9</td>
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<td>46.7</td>
<td>15.3</td>
<td>9.5</td>
<td>6.65</td>
<td>4.2</td>
<td>4.43</td>
<td>63.2</td>
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<tr>
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<td>2530</td>
<td>14.77</td>
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<td>136.5</td>
<td>31.83</td>
<td>75.6</td>
<td>9.94</td>
<td>23.6</td>
<td>0.76</td>
<td>237.5</td>
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</table>

Notes:
- Total contributions for Hungary: 1115.51
- Total contributions for Poland: 5411.28

<table>
<thead>
<tr>
<th>Country</th>
<th>Interreg (€ Mill)</th>
<th>Equal (€ Mill)</th>
<th>Cohesion Fund (€ Mill)</th>
<th>Total (€ Mill)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech Republic</td>
<td>68.68</td>
<td>32.10</td>
<td>936.05</td>
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<tr>
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<td>1.81</td>
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<td>60.05</td>
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<tr>
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<td>10.60</td>
<td>4.07</td>
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<tr>
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<td>30.29</td>
<td>1112.67</td>
<td>1211.64</td>
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<td>Malta</td>
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<td>21.94</td>
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<td>Poland</td>
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<td>133.93</td>
<td>4178.60</td>
<td>4533.89</td>
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<td>22.27</td>
<td>570.5</td>
<td>634.24</td>
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<td>Slovenia</td>
<td>23.65</td>
<td>6.44</td>
<td>188.71</td>
<td>218.8</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>478.86</strong></td>
<td><strong>252.05</strong></td>
<td><strong>8495.04</strong></td>
<td><strong>9851.52</strong></td>
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