



5-Year Report

2008 | 2012

ASSOCIATION OF
MEDITERRANEAN REGULATORS
FOR ELECTRICITY AND GAS



Supported by the European Union



ACKNOWLEDGEMENTS

This 5-Year Report was realised by MEDREG Permanent Secretariat thanks to the very fruitful collaboration of MEDREG Members and to the financial support of the European Union.

5-Year Report

2008 | 2012

This publication has been produced with the assistance of the European Union. The contents of this publication are the sole responsibility of MEDREG and can in no way be taken to reflect the views of the European Union

More information on MEDREG is available on the Internet
www.medreg-regulators.org
ISBN: 9788890713408
© Medreg 2012

This text may be downloaded only for personal research purposes. Any additional reproduction for other purposes, whether in hard copies or electronically, requires the consent of the authors. Source should be acknowledged. If cited or quoted, reference should be made to the full name of the authors, the title, the year and the publisher.

Table of Contents

6	Membership of Medreg	4. ENVIRONMENT, RENEWABLE ENERGY SOURCES AND ENERGY EFFICIENCY
7	Association of Mediterranean Regulators for electricity and gas	18 4.1. Report on the effects of the introduction of successful mechanisms to promote RES and CHP in non-EU countries (May 2010) <i>Winner of the ICER Distinguished Scholar Award 2010</i>
8	List of acronyms	19 4.2. Report on the effects of the introduction of successful mechanisms to promote energy efficiency in non-EU countries (May 2010) <i>Winner of the ICER Distinguished Scholar Award 2010</i>
9	Introduction	20 4.3. Assessment of the effects of extending the functioning of national mechanisms to a supra-national level - RES and CHP (December 2011)
	1. INSTITUTIONAL ISSUES	21 4.4. Assessment of the effects of extending the functioning of national mechanisms to a supra-national level - Energy Efficiency (December 2011)
10	1.1. Recommendations on the minimum requirements considered as necessary to ensure independent Regulatory Authorities in the Mediterranean area (November 2008)	22 4.5. Benchmarking assessment 2010 data (December 2011)
	2. ELECTRICITY	23 4.6. Case study of application of the article 9 on flexibility mechanisms in the EU Directive 2009/28/CE (June 2012)
11	2.1. Assessment report on smart grid in Mediterranean countries (June 2012)	
12	2.2. Summary assessment: survey on the legal framework for management of electricity interconnection in the Mediterranean region (December 2011)	
13	2.3. Report on heading to an integrated Mediterranean electricity market (July 2010)	
14	2.4. Report on interconnection rules and practices for MEDREG countries (November 2008)	
	3. GAS	5. CONSUMER PROTECTION
15	3.1. Status review on Third-Party Access in the Mediterranean region (December 2011)	24 5.1. Recommendations on the minimum requirements considered as necessary to ensure consumers protection in the field of Electricity and Gas in the Mediterranean region (June 2011)
16	3.2. Status review on transparency in the Mediterranean region and monitoring of the MEDREG guidelines of good practice (GGP) on transparency (June 2011)	25 5.2. Summary assessment: survey on consumer protection in the electricity and natural gas sectors in the Mediterranean region (October 2010)
17	3.3. Benchmarking assessment (June 2009)	26 Conclusions

Membership of Medreg

	Albania	ERE	<i>Albanian Electricity Regulatory Authority</i>
	Algeria	CREG	<i>Electricity and Gas Regulation Commission</i>
	Algeria	ARH	<i>Hydrocarbon Regulatory Authority</i>
	Bosnia Herzegovina	SERC	<i>State Electricity Regulatory Commission</i>
	Croatia	HERA	<i>Croatian Energy Regulatory Agency</i>
	Cyprus	CERA	<i>Cyprus Energy Regulatory Authority</i>
	Egypt	EGYPTERA	<i>Egyptian Electric Utility and Consumer Protection Regulatory Agency</i>
	France	CRE	<i>Regulatory Commission of Energy</i>
	Greece	RAE	<i>Regulatory Authority for Energy</i>
	Israel	PUA	<i>Public Utilities Authority - Electricity</i>
	Israel	NGA	<i>Natural Gas Authority</i>
	Italy	AEEG	<i>Regulatory Authority for Electricity And Gas</i>
	Jordan	ERC	<i>Electricity Regulatory Commission</i>
	Jordan	MEMR	<i>Ministry of Energy and Mineral Resources</i>
	Malta	MRA	<i>Malta Resources Authority</i>
	Montenegro	REGAGEN	<i>Energy Regulatory Agency</i>
	Morocco	MEMEE	<i>Ministry of Energy and Mines, Water and the Environment</i>
	Palestinian Authority	PEA	<i>Palestinian Energy Authority</i>
	Portugal	ERSE	<i>Energy Services Regulatory Authority</i>
	Slovenia	AGEN-RS	<i>Energy Agency of the Republic of Slovenia</i>
	Spain	CNE	<i>National Energy Commission</i>
	Tunisia	MIT	<i>Ministry for Industry and Technology</i>
	Turkey	EMRA	<i>Energy Market Regulatory Authority</i>



Association of Mediterranean Regulators for electricity and gas

MEDREG is the Association gathering Energy Regulators for Electricity and Gas of 20 Mediterranean countries: Albania, Algeria, the Palestinian Authority, Bosnia-Herzegovina, Cyprus, Croatia, Egypt, France, Jordan, Greece, Israel, Italy, Malta, Morocco, Montenegro, Portugal, Slovenia, Spain, Tunisia and Turkey. MEDREG was established as a permanent “working group” in May 2006 and became a non-profit Association in November 2007. MEDREG permanent Secretariat is based in Milan, Italy.

The main objective of the Association is the promotion of clear, stable and harmonised legal and regulatory frameworks in the Mediterranean region with the aim to facilitate investments in energy infrastructures and support market integration. To this aim MEDREG promotes a permanent exchange of know-how, data collection and diffusion of expertise through comprehensive studies, recommendation reports and specialised training sessions.

MEDREG long term goal is to provide valuable support to energy governance at regional level towards the establishment of a Mediterranean Energy Community.

MEDREG activities benefit from the active commitment of all Member Regulators, and have been supported since 2007 by the European Union, and by the Council of European Energy Regulators (CEER). MEDREG has been recently acknowledged by the Committee on Industry, Research and Energy (ITRE) of the European Parliament as the reference Institution for energy regulation in the Mediterranean region.

Permanent Secretariat:

Secretariat Coordinator: Fabio Tambone
Senior Project Manager: Benjamin Gallèpe
Project Manager: Isabella Alloisio
Communication Manager: Tiziana Tronci

Working Groups Chairs:

Institutional Working Group including Consumer Issues: Philippe Raillon (CRE)
Electricity Working Group: Hafez El-Salmawy (Egyptera)
Gas Working Group: Metin Korçak (EMRA)
Renewable Working Group: Luis Jesús Sánchez de Tembleque (CNE)

Presidency:

President: Nadjib Otmame (CREG)
Vice Presidents: Luigi Carbone (AEEG), Alberto Lafuente Félez (CNE)

List of acronyms

AG	Ad Hoc Group	LNG	Liquefied Natural Gas
BOO	Build Operate Own	LSO	LNG System Operator
BOOT	Build Operate Own Transfer	MEDREG	Association of Mediterranean Regulators for Electricity and Gas
CDM	Clean Development Mechanism	Med-TSO	Association of Mediterranean Transmission System Operator
CEER	Council of European Energy Regulators	MPC	Mediterranean Partner Country
CHP	Combined Heat and Power	NRA	National Regulatory Authority
CUS TF	Task Force on Customer issues	PPP	Public Private Partnership
DG	Distributed Generation	RES	Renewable Energy Sources
DSM	Demand Side Management	RES AG	Ad Hoc Group on the Environment, Renewable Energy Sources and Energy Efficiency
EC	European Commission	SG	Smart Grid
EE	Energy Efficiency	SEE	South Eastern European
ELE AG	Ad Hoc Group on Electricity	SEM	South East Mediterranean
EP	European Parliament	SEMB	South East Mediterranean Basin
EU	European Union	SSO	Storage System Operator
GAS AG	Ad Hoc Group on Gas	SWM	South West Mediterranean
GGP	Guidelines of Good Practice	SWMB	South West Mediterranean Basin
GWh	Gigawatt/Hour	TF	Task Force
ICER	International Confederation of Energy Regulators	TGC	Tradable Green Certificate
INS AG	Ad Hoc Group on Institutional issues	TPA	Third-Party Access to Energy infrastructure)
ITC	Inter-Transmission system operator Compensation mechanism	TSO	Transmission System Operator
ITRE	Committee on Industry, Research and Energy of the European Parliament	WACC	Weighted Average Cost of Capital
kW	Kilowatt		

Introduction

Since its creation MEDREG has conceived and implemented an ambitious work plan, aimed to build a common vision among its Members based on concrete and in-depth expertise exchange.

Today, the achievements of this period of intense activity are presented to all stakeholders in this unique 5-Year Report. It gathers the executive summaries of all deliverables and technical outputs produced by the Ad Hoc Group on Institutional issues (INS AG), the Ad Hoc Group on Electricity (ELE AG), the Ad Hoc Group on Gas (GAS AG), the Ad Hoc Group on Environment, Renewable Energy Sources and Energy Efficiency (RES AG), and the Task Force on Consumer issues (CUS TF).

The 5-Year Report has been coordinated by MEDREG Permanent Secretariat in close cooperation with the Presidency and the Chairs of the Ad Hoc Groups. The executive summaries are presented in the form of thematic fiches and briefly develop the main contents of each report, highlighting their conclusions and recommendations. This allows MEDREG to better explain and promote the very concrete results of our activities over the last 5 years.

We sincerely believe that this publication, focusing on an extensive range of energy regulatory aspects, would be of real added value to all energy stakeholders and to the research community to further raise the attention and provide concrete proposals on the key problematics at the heart of regulatory harmonization and regional market integration in the Mediterranean basin.

1.1. **Recommendations on the minimum requirements considered as necessary to ensure independent Regulatory Authorities in the Mediterranean area**
(November 2008)



MEDREG completed a survey to reference the state of the art of regulation in the different Mediterranean countries, regarding the structure, organization and competences of National Regulatory Authorities.

On the basis of a benchmarking assessment report, this document aims to identify the minimum requirements considered as necessary to ensure independent Regulatory Authorities, which could be shared and implemented throughout the Mediterranean region.

IN RESPECT TO THE CONCLUSIONS of the benchmarking, the recommendations cover seven topics regarding the various organizational and functional aspects of regulation: **1. Legal Status** Throughout the Mediterranean area, National Regulatory Authorities (NRAs) should be set up on a specific legal basis and be therefore clearly legally separated from their government's administration. Besides, one single Regulatory Authority should be in charge of the regulation of at least both electricity and gas sectors in each country. **2. Independence** The international model of independent NRAs should be based on organizational, financial as well as management independence, targeted towards having an autonomous discretion in every aspect of their decision-making process. **3. Competencies** NRAs should be responsible for ensuring non-discrimination access to the transmission and distribution networks, effective competition and efficient functioning of the market. **4. Procedures** • Whenever decisions are taken by board members, they should follow structured voting procedures (majority/unanimity, quorum, etc.). • Appeal to the decisions of NRAs should be possible before national Civil and / or Administrative Courts. • Each NRA should in-

clude a dispute settlement body among market participants. Any interested party may refer a complaint to the NRA against a transmission or distribution system operator. • The NRA then should conduct public hearings on such complaints. **5. Transparency** • NRAs should conduct public consultations while elaborating their decisions. • Transparency requirements also include the implementation of a communication strategy. **6. Enforcement** NRAs should have the power to sanction sector participants through different means: • Publication of comparative performance reports. • Recommendation or imposition of fines for failure to comply (licenses, secondary legislation, etc.). • Revocation, suspension or modification of licenses. • Revision of access tariffs to the transmission and distribution networks. **7. Accountability** NRAs should implement the following elements: • Issue an annual activity report received by Government and Parliament. • Regularly cooperate with other public bodies. • Have their decisions officially published (including on their websites). • Base their decisions upon reasoned conclusions. • Have the ability to appear before parliamentary committees.

CONCLUSIONS

Analyzing the answers to the 187 items of the Regulatory Benchmarking Questionnaire, some essential principles are already shared among a significant number of Mediterranean regulators. However, diverging issues remain as regards organizational and functional criteria. The main points are related to differences in the level of autonomy allowed to regulators, especially regarding the sharing of the missions and competencies with governmental bodies. As promoting closer cooperation between Mediterranean regulators starts with building a common regulatory approach, this benchmarking study represents a first step toward the identification of shared values and best-practice elements to foster strong and independent regulatory authorities.

RECOMMENDATIONS

First, a legal separation between NRAs and governments' administrations is essential. NRAs should be provided with autonomous discretion in every aspect of the regulatory decision making process, with particular reference to their budget and human resources selection. Second, the minimum requirements for effective regulation should include, inter alia, the ability for each NRA to:

- Determine tariff setting principles for the elaboration of access tariffs to the networks;
- Issue and modify licenses;
- Elaborate and enforce networks rules and standards;
- Monitor the market;
- Ensure consumer protection;
- Review effective utility unbundling;
- Investigate on the activity of operators and sanction failure to comply with standards and codes.

Last, NRAs should seek and receive inputs from all relevant stakeholders and build a sound communication and networking strategy based on a transparent regulatory framework.

→ The full report is published online at www.medreg-regulators.org

2.1. **Assessment report on smart grid in Mediterranean countries**
(December 2011)



This report has the aim to map out the existing status and future plans for Smart Grid (SG) in MEDREG countries, to gain insights into the drivers, barriers, and timing for adoption of new technologies, to focus on the financing methodologies, required plans, and necessary regulations that pave the way to SG in MEDREG countries, and finally to conclude, with a general overview, on the future of MEDREG SG.

The structure of the report was divided into two parts: introduction to Smart Grid, and the Smart Grid Survey that was categorized into four sections.

A SMART GRID IS DEFINED TO BE AN ELECTRICITY NETWORK that can intelligently integrate the actions of all users connected to it - generators, consumers and those that do both - in order to efficiently deliver sustainable, economic, and secure electricity supplies as stated by the EU. SG can be achieved by adding two-way digital communication between generation, transmission, distribution and consumption parts of the power grid. The smart grid communicates information about grid conditions to system users, operators, and automated devices. This enables a dynamic response to changes in grid condition and the establishment of new technologies (forms of DGs and smart metering). The communication is carried out by sensing, measurement and control devices, which add intelligent monitoring, analysis, and control capabilities to the national electrical delivery system and appliances at consumers' sites.

As SG is characterized by many features, its vision and conceptual framework were surveyed and discussed in this report based on four categories as follows: **1. Benefits, Developments, and Barriers** It is essential to inform, evaluate and educate about the benefits and possibilities of SG applications. This part looked into the SG benefits to inquire about the perceptions surrounding the SG in the MEDREG countries. Furthermore, this section

investigated a country's specific assessment of development stages of SG through necessary metrics needed to monitor the development progress of SG as well as the foreseen barriers for SG development. **2. Technology and Infrastructure** The SG concept is to make better use of technologies and solutions to intelligently control generation and consumer consumption, to better plan and run existing electricity grids, and to enable new energy services and energy efficiency improvements. In this part, the available SG technologies used to implement its application were discussed. **3. Financing and Cost Recovery** Timely cost recovery is of utmost importance to the financial stability of SG projects. Thus, an effective Infrastructure Cost Recovery Mechanisms has to be approved to facilitate smooth transition to SG. This part evaluated the available and foreseen SG financing support and possibilities, the priorities of funding distribution among available SG technologies, the identities affected by SG funding, and the available cost recovery mechanisms. **4. Plans and Regulations** Accurate timelines for investing in SG projects and necessary changes in the legislation and regulations are essential to spread SG use worldwide. In this part, factors that affect the SG plans and regulations, current plans and regulation status, and their impact on achieving the SG implementation focusing on Smart Meter technology were explored.

CONCLUSIONS

The outcome of this report can be summarized as follows:

- There is a huge gap between member countries in many SG-related aspects.
- Some MEDREG countries, such as Italy, have advanced networks and applications in terms of SG concepts and implementation; others are now taking action to implement SG.
- Governments/stakeholders should give more attention to developing policies and regulatory environments that support investments in SG.
- Finally, SG deployment is expected to be similar across MEDREG countries, but the routes and time it takes could be rather different. Therefore, a clear roadmap is required.

RECOMMENDATIONS

Based on the obtained wide range of experiences from the MEDREG Members and the few replies to the Survey, a follow-up is mandatory. This follow-up has to involve those member countries that did not complete the Survey forms in the analysis. Also, the follow-up should refine the data provided by those Members which completed the Survey. In the meanwhile, it is recommended to start working in detail on various Smart Grid aspects in member countries.

→ The full report is published online at www.medreg-regulators.org

2.2. Summary assessment: survey on the legal framework for management of electricity interconnection in the Mediterranean region (December 2011)

The aim of this report is twofold. First, it draws up a comprehensive picture of the management of interconnections in electricity in the Mediterranean region. Second, it provides a basis for developing common recommendations on the regulatory issues related to cross border interconnections in electricity in the Mediterranean Basin. To the purpose, a questionnaire was prepared and circulated to INS and ELE AG members.



THIS IS A COMMON PROJECT SET up with the MEDREG Ad Hoc Groups on Institutional (INS AG) and Electricity (ELE AG) issues. The project is dedicated to the legal framework of the management of electricity cross-border interconnections. The related questionnaire was organized in five thematic chapters, whose results are represented as follows:

1. Legal and Institutional Framework Primary legislation or secondary regulation is in place in all countries for the management of electricity interconnection. **2. Capacity Calculation and Allocation** For the majority of the countries reviewed, the assessment of the available capacities is done by TSOs rather than the NRAs. In general, in the north shore of the Mediterranean, auction mechanisms are in place for the capacity, while the system of explicit auction is facilitated in most cases. In case of explicit auction, transmission capacity is auctioned to the market separately and independently from the market places. In case of implicit auction, transmission capacity allocation is implicitly included in the auctions of electrical energy in the market **3. Transit Tariff** A transit tariff does not exist in the majority of countries. In European countries an Inter-Transmission system operator Compensation (ITC) mechanism is applied. The mechanism deals with compensation and contribution of costs. Indeed, the fair and transparent remuneration of transits due to cross-border trade has been on the list of major topics in the European discussion since the beginning of electricity market liberalization. The implementation of the ITC mechanism has played a vital role in the development of a liquid electricity market in the EU in order to remove "pancaking" and all trading barriers across the borders. **4. Balancing System** The aim of balancing is to insure equilibrium between supply and demand in the short term. The system of gate closure is used in the balancing market to determinate the prices and dispatch the existing generation units. The gate closure represents the deadline for participants to submit their bids and offers for each delivery period. At the gate closure, the TSO gets in charge of the management of the network electricity flows and settles any possible difference between demand and supply. For Northern shore countries the gate closure system is exceptional, as they generally rely on a balancing market. **5. Cross Border Power Exchange Through Bilateral Contacts** The use of bilateral contracts as a general framework for the Cross Border Power exchange remains an exception.

nism is applied. The mechanism deals with compensation and contribution of costs. Indeed, the fair and transparent remuneration of transits due to cross-border trade has been on the list of major topics in the European discussion since the beginning of electricity market liberalization. The implementation of the ITC mechanism has played a vital role in the development of a liquid electricity market in the EU in order to remove "pancaking" and all trading barriers across the borders. **4. Balancing System** The aim of balancing is to insure equilibrium between supply and demand in the short term. The system of gate closure is used in the balancing market to determinate the prices and dispatch the existing generation units. The gate closure represents the deadline for participants to submit their bids and offers for each delivery period. At the gate closure, the TSO gets in charge of the management of the network electricity flows and settles any possible difference between demand and supply. For Northern shore countries the gate closure system is exceptional, as they generally rely on a balancing market. **5. Cross Border Power Exchange Through Bilateral Contacts** The use of bilateral contracts as a general framework for the Cross Border Power exchange remains an exception.

CONCLUSIONS

Fourteen MEDREG Countries replied to the questionnaire. The essential principles identified as shared characteristics are:

1. NRAs competences to:

- Set or approve rules regarding the management and allocation of interconnection capacity.
- Fix or approve methodologies to assess balancing services.
- Require the transmission operators to modify their congestion and balancing mechanisms to ensure that these are proportionate and applied in a non-discriminatory manner.

2. Capacity calculation and allocation capacities:

- Create a mechanism of auction for the allocation capacities.
- Assess the available capacities realized by the TSOs.
- Submit the capacities rights to the principle of "use it or lose it or sell it".

RECOMMENDATIONS

The role of TSOs is crucial (e.g.: implementation of legal framework, capacity calculation). They recently created their association for the Mediterranean region, Med-TSO, which aims to build a link between market regulation functions and electrical system operation. Med-TSO offers the opportunity to establish contacts and discuss regulatory issues on cross-border interconnections.

Consequently, it is recommended to disseminate knowledge and start a capacity building programme on cross-border exchange operations in a market environment. The training program could address:

- Interconnection capacity calculation and allocation.
- Transit fees and ITC mechanisms.
- Auction mechanisms.
- Mechanisms for allocating the remaining capacities.

→ The full report is published online at www.medreg-regulators.org

2.3. Report on heading to an integrated Mediterranean electricity market (June 2011)

This report studies the status of each of specific blocks based on: internal countries market, interconnection infrastructure between the countries, and the regional market under which each of the blocks operates. It focused on the following blocks: Iberian Market, West Mediterranean, South East Mediterranean, and South Eastern European. Furthermore, a follow up survey was circulated among member countries to update the data of previous reports.

THE CONTENT OF THE REPORT TOUCHES on the following points:

- Existing and future planned infrastructure of interconnections: it analyzed the interconnection infrastructure of the seven mentioned blocks (markets), as a starting point that will lead to more emphasis for the internal and regional markets that comprise them.
- Financing infrastructure projects: reliable interconnection infrastructure acts as a key element for market integration, which most of the time represents an investment challenge. Thus, this challenge resulted in developing different approaches for investing in this field, each of which has specific financing schemes, depending on the requirements (Public Ownership, Public Private Partnership (PPP), PPP Consortium Financing, Equity Composition Schemes Options, BOO or BOOT Regulated Scheme, and Private Ownership) that can meet different requirements.
- MEDREG Members' electricity markets (regional and internal): the available internal electricity market structures were introduced with an example of their application in Italy. Furthermore, as a result of installing interconnection lines between Mediterranean countries, the available cross-border trade methods

were illustrated through the example of the Iberian electricity market. Finally, some Mediterranean regional electricity market structures (such as Iberian and SEE) were discussed. • Benchmarking for the regulatory and markets status/development in member countries for all blocks.

A follow-up survey provided these updates and was organized in the three following parts: **1. Part A** • Legislative and regulatory framework • Financial viability of the industries • Unbundling of the industries • Removing obstacles to competition • Market access • Market arrangements • Implementation of national markets • Regulation • Technical and commercial rules and agreements • Infrastructure requirements for market operation • Imports and exports **2. Part B** • Updates on the basic infrastructure such as generators, transmission systems, distribution systems, interconnection projects, and energy export and import **3. Part C** • Internal structure of the electricity sector organization. • Priority of purpose for international trade • Volume of total actual imports and imports • Base load imports and capacity available for potential export

CONCLUSIONS

Based on the reply of just eleven MEDREG Member countries, results follow:

- **Priority of purpose of international trade:** "Security of Supply" had the first priority among all countries, while the "Quality of Supply" had the least, except for France which gave the first priority to "Efficient Long Term Investment Planning".
- **Transmission Rights:** among all transmission rights, "central dispatch of an interconnection network, with national dispatchers taking dispatch as instructions as a priority" had the highest priority.
- **Regulatory status and market implementation:** results showed the progress among member countries with respect to year 2007 benchmarking process.

RECOMMENDATIONS

The expected outputs of this comprehensive report are:

- A master plan for energy and interconnection expansion that reflects the approach of Regulators, as agreed among MEDREG Members;
- A report on the present and future needs on interconnection infrastructures investments necessary to integrate the Mediterranean electricity market;
- Report on the Smart Grids in MEDREG countries;
- Proposals on common rules/guidelines for electricity exchanges among MEDREG Member countries;
- A benchmarking report for internal markets and cross border trade;
- A functional training program.

→ The full report is published online at www.medreg-regulators.org

2.4. Report on interconnection rules and practices for MEDREG countries (November 2008)



This report builds on the feedback coming from two survey forms which have been circulated among MEDREG countries, along with the information collected by the task forces. These surveys focus over the principle of energy exchange between the EU Mediterranean countries; the contracts of energy exchange between the Balkan countries within the Mediterranean area; the contracts of energy exchange of the Mashreq countries; the contracts of energy exchange between the Maghreb countries.

THE ELECTRICITY AD HOC GROUP has issued a report entitled "Regulatory Status and Market Implementation" to capture the electricity market status in MEDREG countries. The conclusion of this report is that all countries are moving toward the establishment of free electricity markets; their different paces are determined by internal factors. However, the core question that is standing against that transformation is the financial viability of the industry. All the countries which responded to the surveys are still working towards that goal. In fact, cross-border trade has the potential to grow in all MEDREG regions.

Similarly to the "Regulatory Status and Market Implementation" study, a report to capture the present rules and practices governing exchanges among member countries has been developed. MEDREG participants agreed to form task forces to collect the required information for this report as follows:

- Spain was responsible for providing the principles of energy exchange

- Turkey was responsible for providing the contracts of energy exchange between the Balkan countries in the Mediterranean region.
- Egypt and Jordan were responsible for providing the contracts of energy exchange of the Mashreq countries.
- Algeria was responsible for providing the contracts of energy exchange between the Arab Maghreb countries in the Mediterranean region.

Two survey forms have been circulated among MEDREG participants. The first survey form questioned the present and future infrastructure facilities. The second survey investigated the practices that govern cross border exchange in MEDREG regions. The report is composed of four chapters. Chapter 1 illustrates duties and objectives of the ELE AG. Chapter 2 describes the interconnections facilities and operation among member countries. Chapter 3 presents the present rules and practices that govern exchange among member countries. Chapter 4 contains conclusions and recommendations.

CONCLUSIONS

This report replaces the results of the two surveys circulated among MEDREG participants pertaining the present interconnection infrastructure and the cross-border governing rules and procedures. The report affirms that the first step to the establishment of a regional electricity market requires the harmonization of countries' internal market rules. Still, reinforcements for the interconnections as the physical medium of the market are in progress in different states. Closing the ring around the Mediterranean is awaiting the removal of the hurdles faced by the SEMB, SWMB and Turkish interconnections. Furthermore, pan-Mediterranean guidelines for cross-border trade still need to be put in place.

RECOMMENDATIONS

It is recommended to establish a master plan and an entity responsible for the follow up of the required efforts for the fulfillment of this plan.

Moreover, it is recommended to establish a Reliability Council in the Mediterranean region. The Mediterranean Electric Reliability Council is to look at two aspects of bulk power system reliability: system adequacy and system security. A system must have enough capacity to supply power to its customers (adequacy), and it must be able to continue supplying power to its customers if some unforeseen event disturbs the system (security).

→ The full report is published online at www.medreg-regulators.org

3.1. Status review on Third-Party Access in the Mediterranean region (December 2011)



This study focuses on the Third Party Access (TPA) status in the Mediterranean region and on the future needs in order to develop an integrated Mediterranean market.

This study is the result of a questionnaire that circulated among MEDREG countries with the aim to get a picture as complete as possible of the TPA situation in the whole region. The paper takes into account the different levels of market development in the Mediterranean countries. The participative process of the survey suffered from some countries' defections. However, it has been possible to generally assess the status of TPA to the infrastructures of the gas markets.

ONE OF THE MOST IMPORTANT PRECONDITIONS to achieve an integrated, competitive and secure gas market in the Mediterranean countries is ensuring that participants in the gas markets have easy-accessible and non-discriminatory access to the infrastructures.

This document aims at developing the first step: a status review of the current situation regarding TPA to the infrastructures of the gas system and markets in Mediterranean countries. Section 2 provides a description of the general situation regarding the status of TPA to the infrastructures of the Mediterranean gas markets. This section focuses on some general aspects regarding market opening, unbundling, TPA to infrastructures, methodologies for capacity allocation and congestion management, tariffs, anti-hording mechanisms, mechanisms to promote market opening, quality of service and dispute settlement. Section 3 is a summary of the main findings and conclusions. On a country-analysis basis, it is possible to divide countries depending on the detail of their TPA-related rules and on their implementation capability.

- The first group of countries is composed of France, Italy, Portugal, Slovenia, Spain and Turkey. They legislated on and implemented more than 80% of TPA-related rules. Generally, all consumers are eligible to choose their supplier, there is more than one supplier, the ac-

cess to the infrastructures is normally regulated and the TPA rules as well as the methodologies for capacity allocation and congestion management are published and available to all users. With the exception of Slovenia and Turkey (no information), the tariffs are entry-exit. Both anti-hording mechanisms and mechanisms to promote market opening are in place. With the exception of Spain, in these countries the regulators have competencies regarding unbundling, TPA, tariffs and quality of service.

- The second set of countries includes Israel and Croatia. They score between 60% and 80% for the existence and implementation of TPA-related rules. The third group of countries is made of Algeria, Bosnia-Herzegovina, Greece and Jordan. They score between 40% and 60% for the existence and implementation of TPA-related rules. There is no real market opening; nevertheless the TPA to the infrastructures is regulated, with the exception of Bosnia-Herzegovina. The tariffs are postage stamp, with the exception of Jordan, and there are no mechanisms to promote market opening. In Jordan there is no liberalized market.
- In Greece and Israel no answer was given to the 2011 questionnaire and so the information considered regards the 2008 benchmarking questionnaire.
- In Albania, Cyprus, Malta and Montenegro there is no relevant gas consumption.

CONCLUSIONS

The main conclusion of this monitoring exercise is that regulated TPA to the infrastructures is linked to the degree of opening of the gas market. The more developed a gas market is in terms of penetration of gas consumption, openness and liberalization, the more likely it is that TPA to the infrastructures is regulated, the rules for access the infrastructures are published and the regulator has competencies regarding the approval of these rules and of the access tariffs to the infrastructures. Generally and as a conclusion per subject it is possible to remark:

- The status of market opening, the quality of service and the dispute settlement are generally satisfactory in the countries that answered the questionnaire.
- The unbundling, the TPA to the infrastructures, the existence of methodologies for capacity allocation and congestion management, the transmission access tariffs, the existence of anti-hording mechanisms and of mechanisms to promote market need some improvement.

RECOMMENDATIONS

Taking into account the results of this benchmarking study, it can be stated that the situation of TPA to infrastructures in the Mediterranean region gas markets can be improved and some measures can be proposed to pursue this goal. This will be done in the second stage of this work, when the Guidelines of Good Practice (GGP) on TPA for gas in MEDREG countries will be developed. Additionally, and as the participation of all MEDREG countries in answering the questionnaires is of primordial importance to share information and knowledge, the group will ask for stronger contribution from those countries which have not provided sufficient data on their TPA to gas systems. The sharing of information and knowledge remains a key factor to the promotion of wide Gas Markets in the MEDREG countries.

→ The full report is published online at www.medreg-regulators.org

3.2. Status review on transparency in the Mediterranean region and monitoring of the MEDREG guidelines of good practice (June 2011)

One of the most important preconditions to achieve an integrated, competitive and secure gas market in the Mediterranean region is ensuring that participants in the gas markets have easy and non-discriminatory access to all the information they need. The Ad-Hoc Group on Gas (GAS AG) has investigated the transparency status in the gas systems and markets of Mediterranean countries, and has monitored the enforcement of the guidelines and recommendations on transparency contained in the MEDREG Guidelines of Good Practice (GGP) on Transparency. This report presents the results of that survey research, emphasizing the positive advancement of Mediterranean countries in disclosing and publishing information.



ON THE METHODOLOGY, it is necessary to explain that this investigation exercise takes into account the different levels of market development in the Mediterranean countries - in the region there are countries without gas consumption, or with gas consumption but no liberalized gas market or TPA. To achieve the objective of developing an integrated gas market in the region in the long-run, one of the most important prerequisites is to ensure that all actors involved in the energy sector – administrations, regulators (NRAs), transmission, LNG, and storage system operators, producers and suppliers, consumers – have easy-accessible and non-discriminatory access to all the information they need to perform their activities and fulfill their obligations. For each country, the respondents to the questionnaire, or the research carried out for this study, have provided with the relevant websites for the information on the gas system and services a user would need for taking part in the gas market. Three criteria have been evaluated for the publication of the necessary information recommended in the GGPs: Availability of information in English; Easiness and non-discriminatory access to information; Information free of charge.

CONCLUSIONS

The main conclusion resulting from this study is that transparency and availability of information are linked to the degree of development of gas markets. The more developed a gas market is (in terms of penetration of gas, consumption, openness and liberalization), the more information is found in general terms, and with a higher level of detail. Transparency is then at the heart of market development.

When analyzing the information availability of the particular areas covered by the GGP – system and services, and capacity situation – the results are mainly positive for the general information, with most TSOs publishing general data of their systems, while for the specific items linked to more developed gas markets, the degree of availability is not so remarkable. Many TSOs from countries where no TPA or liberalized market exist do not publish information related to capacity access. In LNG and storage, results are better than for transmission, possibly because these services exist in the most developed markets of the region.

The transparency requirements analyzed in the Status Report are:

- 1. System and Services** • A detailed description of the gas system of each TSO, identifying all entry and exit points, including maps, or a detailed description of the LNG and storage facilities operated by the concerned LSO/SSO concerned. • Detailed and comprehensive information about all services offered. • Detailed and comprehensive information about the agents that can require access to the services offered. • The different types of contracts available for the services offered and the contracting processes. • The flexibility and tolerance levels included in transportation and other contracted services. • As applicable, the network code and/or the main standard conditions outlining the rights and responsibilities for all users of the gas system of the TSO. • The capacity allocation, congestion management, anti-hoarding and reutilization provisions. • The rules applicable for capacity trade on the secondary market. • Gas quality and pressure requirements.
- 2. Capacity Situation** • The maximum technical capacity (Million of m³/h or GWh/day). • The total contracted firm and non-firm capacities (idem). • The available firm and non-firm capacities (idem).

RECOMMENDATIONS

The transparency situation of gas markets in the Mediterranean region can be improved and some measures can be proposed. The basic recommendation to disclose information in a meaningful, quantitatively clear and easily accessible way, and free of charge, is almost unanimously respected. However, the recommendation to publish information in English, in addition to the national language/s, is not as widely fulfilled. As the GGPs are to be implemented on a voluntary basis, actions must be oriented to inform on the contribution that Transparency GGP gives to the market, thus obtaining support and commitment from different stakeholders to:

- Increase contribution in providing information on transparency.
- Work in collaboration with the TSOs' associations in order to spread the conclusions of the transparency study and broaden the application of the GGPs learnings.
- Support the online publication of the relevant transparency information in English.

→ The full report is published online at www.medreg-regulators.org

3.3. Benchmarking assessment (June 2009)

This Benchmarking Assessment on gas markets and infrastructures is one of the first steps taken to institutionalise cooperation between the regulatory bodies of the Mediterranean region. The scope is to achieve a consistent, harmonized and investment-friendly regulatory framework, to benefit the MEDREG Countries' energy consumers. Through the cooperation of the MEDREG Members, the Ad Hoc Group on Gas has produced this study, providing the assessment of the current status of gas markets and sector regulation in the MEDREG countries and its expected evolution.



THIS BENCHMARKING ASSESSMENT on gas markets and infrastructures is one of the first steps taken to institutionalise cooperation between the regulatory bodies of the Mediterranean region. The scope is to achieve a consistent, harmonized and investment-friendly regulatory framework, to benefit the MEDREG Countries' energy consumers. Through the cooperation of the MEDREG Members, the Ad Hoc Group on Gas has produced this study, providing the assessment of the current status of gas markets and sector regulation in the MEDREG countries and its expected evolution.

1. Market and infrastructure • The MEDREG region accounts for 5% of natural gas reserves in the world, and is responsible for slightly more than 5% of the gas production and a share of 9% of the world gas consumption. While reserves are concentrated in North African countries, the main consumption takes place in the North of the Mediterranean Basin. • Markets are different: some are supplied by a unique state owned company, while others have completely liberalized this activity with the aim to promote competition among agents. • The region has many transit lines between countries, directly linking producers and consumers. • The region also accounts for a significant LNG market.

2. Legal and Regulatory Framework • All countries have an independ-

CONCLUSIONS

There is a majority of countries where the infrastructures belong to State owned companies. Licenses are normally required to build and exert regulated activities (i.e. transmission, distribution, LNG and storage). On the unbundling, although there are some countries where there is not an explicit requirement to this matter, the majority of them have enforced at least an accounting unbundling. There is a majority of countries where the TPA regime to the gas infrastructures is regulated. Nevertheless, the capacity allocation mechanisms and congestion management procedures are not very developed. Hence, the Regulated Third Party Access has not still translated into a significant competition level in their natural gas markets. In some countries the grid code has not been defined yet or is in drafting process. Nevertheless, those markets in which the competition is developed in a greater degree usually have already issued a grid code that in some cases is regularly updated.

ent regulatory agency, as well as a Ministry responsible for Energy. The powers of regulators differ between countries; as for their age, most of the NRAs have been existing for a decade. • In the majority of countries, gas infrastructures belong to state-owned companies. Governmental licenses are normally required to exert regulated activities and also to act as a shipper or trading company. • Although the regulated TPA regime is much extended in the region, the capacity allocation mechanisms and congestion management procedures are not very developed. • The main body responsible for disputes settlement is the regulator, although in some cases the Government takes this role.

3. New Investment Needs and Processes • The assessment of new investment needs is carried out by different means: centralized but participative planning processes; direct assessment by the main national TSO; surveys taken among market players. • The development of new infrastructures are stimulated through TPA tariffs; governmental participation in building the new assets; guarantee of pre-fixed rates of return and access exemptions under specific conditions. • Governments decide whether to approve new investments. • Experiences of cooperation between MEDREG countries have been positively implemented.

RECOMMENDATIONS

- It is a general practice of the MEDREG countries to make the legislation available for all the interested parties on the ministries and / or regulators' web pages, although only part of them provide an English version together with the copy in the national language. The translation of official documents in English should therefore be promoted.
- There are some experiences of bilateral cooperation between MEDREG countries. They could serve as examples of possible ways to obtain significant benefits from mutual support within the region in terms of increase of the security of supply; diversification of gas sources (for consumers) and gas demand (for suppliers); financial and technical support; risk reduction. There are multiple potential ways to cooperate between MEDREG countries, which have to be explored in the near future.

→ The full report is published online at www.medreg-regulators.org



EXECUTIVE SUMMARY

4.1. Report on the effects of the introduction of successful mechanisms to promote RES and CHP in non-EU countries (May 2010)

Regulation plays a fundamental role in guiding the energy model towards a path of sustainability, especially in liberalized energy frameworks, so that market failures are reduced or minimized when regulatory mechanisms are introduced.

EU countries have an important backup of framework setting in the promotion of RES and CHP. The target of this document is to provide some ideas to take advantage of this regulatory experience in order to introduce successful mechanisms to promote Renewable Energy and CHP in non-EU countries.

This report is the winner of the ICER Distinguished Scholar Award 2010

IN NON-EU COUNTRIES THERE ARE PARTICULAR BARRIERS for the development of Renewable Energy Sources and Combined Heat and Power. These barriers may be overcome through successful mechanisms and external financing measures.

1. Barriers in Non-EU Countries for RES and CHP • Insufficient information and know-how in RES and CHP technologies. RES and CHP development needs complex technology, enough skilled personnel and industry and commercial networks. • Low investment levels for RES and CHP projects. Renewable and CHP plants have a much higher investment cost by kW than conventional energy sources. • Insufficient network capacity. Some renewable technologies (as wind energy) are intermittent and need backup energy, hence they are more difficult to manage for the network Systems Operators. In some countries, network capacity is not strong enough to manage this new RES energy. • Legislative and regulatory framework undeveloped and without stability. • Lack of experience in promotion mechanisms. Evaluating costs and fixing tariffs properly with no previous experience could be a difficult task. • Lack of electricity supply for all consumers. In certain non-EU countries, some consumers have not access to the distribution and transmission lines. This could be a priority for these countries, before RES and CHP are developed.

2. Possibility to Introduce Successful Mechanisms and Eliminate

CONCLUSIONS

Some lessons can be learned from the RES experiences in the EU countries. There are several EU examples where it is possible to find good guidelines in order to select the right mechanisms for each country, according to the particular economic and social situation.

There are some specific barriers to develop RES in non-EU countries, but there are also mechanisms to remove them, based on regulatory stability, definition of specific national targets, definition of adequate promotion mechanisms, definition of RES and CHP access regulation and grid integration and of network development plans. All of these mechanisms should be based on a fruitful cooperation between Members and on some mandatory planning.

Barriers for RES and CHP in Non-EU Countries • Guarantees of regulatory stability. Regulation has to offer sufficient guarantees to ensure that economic incentives are stable and predictable during the entire life of a facility. • Definition of specific national targets/objectives. Targets have to be ambitious, but realistic, according to the economic, social and physical features of the country, and the possible evolution of energy prices. • Definition of network development plans. A minimum network development has to be defined in the mandatory planning. • RES and CHP access regulation and grid integration. It is important to set up connection procedures for RES and CHP facilities. Non-discriminatory access rules and priority of dispatch have to be established. • Collaboration programs between Members. Know-how exchange, regulatory collaboration in Regional Associations, technical collaboration between TSOs, or training programs. • Definition of promotion mechanisms. It is necessary to get basic information for each technology concerning investment costs and average operating costs in order to design an adequate support scheme to RES and CHP.

3. External Financing Non-EU countries should receive external financing to increase their renewable capacity. This can take place through: • Official Aid Development. Access to electricity from RES is an essential component in the fight against poverty and underdevelopment. • Private initiative. The regulatory framework must ensure profitability of private investments.

RECOMMENDATIONS

The definition of realistic but ambitious targets in the national legislation is a key point for each Member. According to these targets, the second step would be the definition of promotion mechanisms based on transparency and stability of the national legislation.

Also, it is essential to develop connection procedures for RES and CHP facilities. Non-discriminatory access rules and priority of dispatch need to be established.

Finally, developing countries must receive external financing to increase their renewable capacity, through public and private initiatives under the framework of Flexibility Mechanisms in Kyoto and post-Kyoto Protocol, or flexibility mechanisms in the Directive 2009/28/CE.

→ The full report is published online at www.medreg-regulators.org

EXECUTIVE SUMMARY

4.2. Report on the effects of the introduction of successful mechanisms to promote energy efficiency in non-EU countries (May 2010)

The objective of this paper consists in verifying the possibility of extending successful energy efficiency policies to other MEDREG countries, analyzing potential obstacles and main factors of success to their implementation.

Efficient mechanisms have been identified, including white certificates markets, tender mechanisms, time-based pricing, and energy audits. Through specific case studies, some conclusions and recommendations are provided for those countries interested in introducing similar measures in their national context.

This report is the winner of the ICER Distinguished Scholar Award 2010

FIRST, THE PAPER FOCUSES on problems which could hamper the introduction of successful mechanisms for the promotion of energy efficiency in MEDREG countries. Second, the study identifies the key factors of success for the introduction of energy efficiency policies in Mediterranean countries. On the basis of previous analyses about support mechanisms to promote energy efficiency, efficient mechanisms have been identified to select the demand-side energy management measures, including white certificates markets, tender mechanisms, time based pricing, energy audits. The paper focuses in particular on three case studies, concerning policies that demonstrated to be successful.

The first case study concerns the introduction of energy saving obligations in Europe. On the basis of existing experiences in the adoption of this mechanism, the paper provides synthetic guidelines that could be useful for countries which

plan to introduce it in the future. The section is completed by a description of the main results coming from the creation of a white certificates market in Italy. The second case study focuses on tender mechanisms and is mainly dedicated to the relevant experience of Portugal. This section draws attention to the rational objectives and most important results of this measure, pointing out critical issues and factors of success in the specific context of this country. A third case study regards the introduction of a time based pricing policy, in particular through the adoption of smart metering. To help interested countries, the paper provides synthetic guidelines based on the experience of those countries which have already adopted this system. This section then focuses on the planned introduction of smart metering in Jordan, highlighting the main objectives, the potential obstacles and the principal factors of success in this country.

CONCLUSIONS

White certificates market, tender mechanisms and the adoption of smart metering resulted to be all successful policies for the promotion of energy efficiency. Before any implementation of energy efficiency measures, a careful evaluation of expected benefits and costs of such measures in the context of the eligible country should be carried out: the introduction of these policies has not to be considered an objective in itself. The experience to date in Europe with white certificates and tender mechanisms is still quite limited. Implementation of these policies is generally successful where mature financial infrastructures and experienced market players are in operation. Moreover, liberalized electricity markets and development of energy services companies enable to promote energy efficiency more effectively. With respect to the white certificate scheme, the experience of countries such as Flanders and UK demonstrated that even without the benefit of full trading mechanisms, there are still significant financial benefits related to the introduction of saving obligations.

RECOMMENDATIONS

For developing countries approaching the issue for the first time, it is advisable to initially introduce energy efficiency obligations placed on energy utilities. Later, they can progress toward more complex systems, such as the white certificates mechanism.

Regarding smart metering, it is recommended to introduce interoperable meters from the beginning, and comply with minimum functional requirements. This will allow the switching of consumers from one supplier to another when markets are mature for the development of competition.

→ The full report is published online at www.medreg-regulators.org



4.3. Assessment of the effects of extending the functioning of national mechanisms to a supra-national level - RES and CHP (December 2011)

In general, EU MEDREG countries display a higher share of renewable energy than non-EU MEDREG countries. However, Southern MEDREG countries usually have the best natural resources to install renewable generation plants. This contradiction can be explained through the national support mechanisms to renewables, which considerably vary among countries.

The objective of this report is to analyze benefits, risks and possible solutions to expand successful national mechanisms supportive of RES (Renewable Energy Sources) and CHP (Combined Heat and Power).

THIS REPORT ESTABLISHES the benefits and risks of setting a RES regulatory framework at the international level:

1. Potential benefits • Optimization of natural resources. • Improved efficiency: comparison between the total amount of support received and the generation cost. • Improved effectiveness: ability to increase the share of renewable electricity according to a potential of reference. • Development of non-EU countries: advantages concerning the creation of a local industry, employment, local and regional development, trade balances, security of supply, etc.

2. Analysis of Potential Difficulties and Risks • Delay of some EU countries in fulfilling the EU regulation. • Difficulty in designing an adequate supra-national support scheme. This is a complex task, with the possibility of over-pricing and creating windfall profits for generators and extra costs for consumers. • Increase in electric energy prices. • Insufficient network infrastructures: currently, there is only one interconnection in the West part of the Mediterranean Sea, and some interconnections in the East part. • Geopolitical barriers: energy is usually considered as a sensitive national issue. • Convergence in the institutional framework.

The regulatory mechanisms at the supra-national level could contribute to overcome those barriers. Some of these provisions are the flexibility mecha-

nisms included in the 2009/28/CE Directive and in the Kyoto protocol.

3. Flexibility Mechanisms in the Directive 2009/28/CE The Directive facilitates cross-border trade of RES energy in order to facilitate the reaching of national mandatory targets. These flexibility mechanisms are statistical transfers, joint projects between Member States and with third countries, and joint support schemes. Key points for the success of these key mechanisms are: • Agreement between countries: relevant authorities should establish a dialogue to transfer RES knowledge and experiences. • Share of the RES energy: the projects must decide which part of the generated electricity is for internal consumption and which part can be exported. • Interconnections: this is a key point to facilitate integration of electricity from renewable sources. • Certification bodies: It is necessary to set up certification organisms in the participant countries, at a national level, with the international recognition of the EU and the non-EU Members. • External and internal financing mix: the incentives must provide reasonable expectations for all parts, and all stakeholders involved must be guaranteed a reasonable profitability.

4. Flexibility Mechanisms in Kyoto and Post-Kyoto One of the flexibility mechanisms defined in the Kyoto protocol is the Clean Development Mechanism (CDM). Currently, CDM constitutes a financial tool that is seldom used in the region.

CONCLUSIONS

Renewable resources in non-EU countries could be used by EU countries with great advantages for both parts in terms of efficiency, effectiveness, economic growth and social development.

The Directive 2009/28/CE allows non-EU countries to receive investments for the development of RES installations in their territories. The energy produced can be used domestically or exported to the EU. EU countries can profit of these exports to fulfill their national targets for renewable energy.

RECOMMENDATIONS

From the MEDREG perspective, one of the key points to promote RES is to set a clear and stable regulatory framework at the international level. First, this framework would push EU countries to fulfill EU legislation on RES on time. Second, such a framework could facilitate energy investments in non-EU countries, which would take advantage of their considerable potential resources and avoid the aforementioned risks.

It is highly recommended to take into account all the wide range of different flexibility mechanisms: Directive 2009/28/CE, and Kyoto and Post-Kyoto protocols.

→ The full report is published online at www.medreg-regulators.org

4.4. Assessment of the effects of extending the functioning of national mechanisms to a supra-national level - Energy Efficiency (December 2011)

The report addresses the question of whether a more aligned approach in the energy efficiency field is possible and which initiatives can be undertaken to foster energy efficiency in the Mediterranean context. The objectives of this paper are to assess the possibility for enhanced cooperation on energy efficiency policies among MEDREG countries; to carry out a comparative analysis of national energy approaches and identify gaps and areas with potential for energy savings; to provide recommendations to foster energy efficiency more effectively.

SETTING OUT AN ENERGY EFFICIENCY POLICY at a supra-national level is a sensitive and complex task. Energy efficiency measures necessarily need to be tailored to the specific context of each country, requiring the direct involvement of local and national bodies. Therefore, any approach aimed to apply the same "recipes" to the different national contexts is clearly not appropriate. Also, this is an area with a large number of players: national and local governments, regulators, industrial agents, consumers. In view of that, relevant changes in the energy efficiency field over the long-term are not easy to obtain and the mechanical extension of national energy efficiency mechanisms to other countries is void of sense. However, an enhanced coordination at the regional level could help to remove some of the existing barriers, as well as to improve the effectiveness of the national energy efficiency interventions.

The paper preliminary focuses on the scopes of enhanced cooperation in the context of the Mediterranean basin. On that respect, some energy efficiency indicators have been chosen to facilitate cross-country comparisons. Moreover, the European experience is presented as it represents the most

ambitious attempt to promote energy efficiency on a regional scale.

A second part is devoted to the comparative analysis of national energy efficiency policies to identify existing gaps and areas of intervention where a relatively higher potential for energy saving improvements exists. This chapter reviews the main efficiency policies in place in Mediterranean countries. They are categorized and individually analyzed to determine bottlenecks and consequent justifications for enhancing cooperation. In particular, by means of a "traffic light box", the analysis shows that some countries have introduced energy efficiency measures in several of the areas where a significant energy saving potential is estimated. However, the majority of countries limit their legislation and level of implementation to few energy efficiency policy options. Moreover, in some cases, the impact of the measures which have been introduced results to be modest compared with the existing large potential of energy savings.

Based on the analyses carried out in the report some recommendations are provided to speed up the implementation of more coordinated and effective strategies for energy efficiency.

CONCLUSIONS

This report provides an overview of the rationale for coordinating policy interventions on energy efficiency in the MEDREG context. In particular, it reviews the main efficiency policies in place in Mediterranean countries, grouped by main categories, and assessing for each of them the main bottlenecks and consequent justifications for enhanced cooperation.

The lesson provided by the European experience and by the first implementation of National Action Plans on energy efficiency suggests that a more holistic approach, based on the balance between different types of intervention, is more effective than focusing on individual measures.

RECOMMENDATIONS

In order to foster energy efficiency and international cooperation among Mediterranean countries, a set of recommendations has been formulated, suggesting to:

- accelerate the preparation of future national strategies for energy efficiency in order to achieve improvements where there is more potential for energy savings;
- establish a partnership to provide technical assistance in the design of national plans/strategies;
- monitor results, share experiences and lessons, agree on good practices and use them as a guide for future actions;
- reduce the financial barriers to scale up the potential of energy savings interventions.

→ The full report is published online at www.medreg-regulators.org



4.5. Benchmarking assessment 2010 data (December 2011)

The objective of this document is to promote the exchange of information, knowledge and experiences about Environment protection, promotion of RES, CHP and Energy Efficiency. Every year this report aims to give an overview of the situation and the evolution of each MEDREG Member in terms of Renewable Energy Sources, Energy Efficiency, CO2 and other pollutant emissions, power generation structure, demand evolution, and market organization. The information is based on responses to a questionnaire and on other sources.

THE BENCHMARKING ASSESSMENT is divided in eight chapters: **1. Basic information** This section covers the current situation of each Member State: installed capacity per technology, share of RES production/demand, CO2 emissions from electricity generation plants. **2. Legislative and Regulatory Framework** This part is related to the legislative and regulatory framework for RES and CHP electricity generation. Almost all RES AG participating members have adopted specific RES legislation. Questions remain about the adoption of environmental impact assessments, emission limits, plans to fulfill the Kyoto protocol and energy taxation. **3. Regulator** The questionnaire includes a specific chapter related to the role and competencies of the energy regulator in each country: independence of the regulator (versus the existence of a Ministry), regulatory capacity in terms of sufficient and skilled staff, responsibility about power and access tariffs, RES, CHP and Demand Side Management (DSM) programs, etc. **4. National Targets/Plans/Objectives in RES, CHP, Other Forms of Energy Efficiency, Kyoto Protocol** Members provide information about specific RES, CHP, Energy Efficiency and Kyoto Protocol targets and deadlines. According to the information obtained, many countries have established objectives for RES in terms of installed capacity,

whereas others have settled objectives in terms of coverage of gross electricity demand/production/consumption. Some measures on Energy Efficiency have been established in several Countries, sometimes including CHP. Although CHP is not always included in these Energy Efficiency measures, several countries have developed sector-specific regulation and objectives. To achieve the objectives agreed upon in the Kyoto Protocol, several countries have set up a programs and plans related to the reduction of CO2 emissions, to achieve the objectives agreed upon in the Protocol. **5. RES and CHP Market Access** All countries have developed connection procedures, congestion management rules and non-discriminatory operation rules for RES and CHP. **6. Promotion Mechanisms** Promoting systems for electricity produced from RES and CHP plants are mainly divided between a fixed price system (Feed-in-Tariff/Feed-in-Premium) and a Tradable Green Certificate (TGC) system. **7. Eligibility for Consumers** Definition of eligible consumers to participate in a competitive market and future targets. **8. Tracking/Disclosure of RES Electricity** Overview about tracking/disclosure systems for RES electricity: tracking certificate (Guarantee of Origin, Renewable Energy Certificate, etc), competent issuing body, disclosure system mandatory for suppliers, etc.

CONCLUSIONS

In almost all MEDREG countries, there is an independent regulator (versus the existence of a Ministry), which includes its own funding and appropriate appointment procedures. It is also ensured that the regulator works under the definition of regulatory principles. Overall, it is possible to determine that most Members have adopted a specific legislation about emissions limits on thermal plants, RES and CHP, and Energy Efficiency. It is also possible to determine that all examined countries have a mix of technologies to cover their electricity needs. As for RES, the most extended is hydro-power, followed by wind and biomass. Taking into account the data about demand evolution, it is possible to observe that electricity demand was rapidly increasing until 2008 in all countries. On the other hand, in 2009 and 2010 some countries shows a downward trend because of the economic crisis. Finally, promoting systems for electricity produced from RES and CHP plants are mainly divided into fixed price system: (Feed-in Tariff, Feed-in-premium) and Tradable Green Certificate (TGC) system. The majority of the RES AG Members have established a fixed price mechanism.

RECOMMENDATIONS

This document is a useful tool to overview the evolution in Mediterranean countries in relation to RES, CHP and Energy Efficiency issues. Best practices in specific areas, and the results of these practices are updated every year, so the analysis of the "Benchmarking Assessment" can give important ideas to learn from successful experiences in other countries. Sharing these experiences, the information and also the mistakes can be the best guide to advance in the sustainability of our electricity systems.

→ The full report is published online at www.medreg-regulators.org

4.6. Case study of application of the article 9 on flexibility mechanisms in the EU Directive 2009/28/CE (June 2012)

The objective of this report is to present a case study on the application of the article 9 of Directive 2009/28/EC. The project under analysis consists of the construction and operation of a Concentrated Solar Power plant (parabolic trough technology), located in a country in North Africa. The aims are to calculate the adequate incentive to be given to the investors; to assure a reasonable profit; to take into account the WACC estimated in the EU country for the electric energy sector; to increase the production of energy from RES that will be taken into account for measuring compliances with the national targets according to article 9 of Directive 2009/28/CE.

MOST GOVERNMENTS OF MEDITERRANEAN PARTNER COUNTRIES (MPC) are aware of the economic and environmental benefits of promoting renewable energy technologies in their countries, along with Demand Side Management (DSM) measures. On the other hand, the mass development of RES in the region and the growing electricity demand are accompanied by considerable obstacles and challenges.

1. Benefits • Reduced environmental impact by eliminating pollution deriving from mining and drilling. • Health benefits for the population because of the reduced fossil fuels pollutants. • The reduction of energy dependence on foreign fossil fuels. • Advantages in terms of security of supply and system adequacy. • Potential creation of a local renewable energy industry in developing countries. • Creation of new jobs and reduction of unemployment. • Saving potential of solar and wind powers for heating and cooling bills, which leads to an overall efficiency increase in the economy.

2. Obstacles • High estimated costs. • Urgent need to have a stable institutional framework, which reduces the regulatory risk and encourages the necessary investments (both national and foreign). • Lack of appropriate

infrastructures and interconnections, as well as of the legal and institutional barriers.

3. Three Major Challenges • Difficulties in mobilizing financial resources for new power generation capacity and transmission/distribution networks. • Electricity interconnections and the creation of regional power markets (both South-South and South-North). • Sustainable development, meaning the rational use of energy and deployment of RES.

4. A Potential Solution: Joint Projects with Third Countries. According to this mechanism, EU-Member States cooperate with a project located in a non-EU country. The aim of the project must be the production of electricity from RES, which contributes to the national RES targets of the EU-states, under the following conditions: • Electricity must be consumed in the EU. An equivalent amount of electricity has been nominated to the allocated interconnection capacity by both system operators. • Energy must be produced by a new installation plant. • The produced and exported electricity should not receive support from a third country other than investment aid granted to the installation.

CONCLUSIONS

In order to apply the flexibility mechanisms defined in the article 9 of the RES Directive, it is important to certify and guarantee that the energy coming from the plant installed in the Third country and consumed in the EU country comes from RES. It is therefore necessary to set certification organisms in the participant countries, at the national level, with the international recognition of all the EU and non-EU Members. These organisms must issue official certifications according to objectives criteria and transparent rules, and implement appropriate control measures.

The prospect of increasing generation from RES implies the development of additional grid interconnections within the EU and between the North and the South shores of the Mediterranean Sea basin. The development of grid interconnections so that investments can be deployed in a timely manner requires to address specific issues, including connection procedures for RES facilities, manners to speed up the permitting process and promotion of cross-border cooperation.

RECOMMENDATIONS

It is important to remove the existing bottlenecks in some congested corridors. Non-discriminatory access rules and priority of dispatch have to be properly defined for electric energy from RES. Each country involved shall ensure that network operators in their territory guarantee the transmission and distribution of electricity produced from RES. International rules shall clearly define any technical specifications that must be met by RES equipment and systems to be connected to the grid.

The TSOs have the responsibility to guarantee the security and the adequacy of the power systems installations; new generators have to comply with grid codes and technical specification prior to being connected to the grid. Therefore, tools to expedite permitting procedures should be supported. In this context, the identification of national contact or coordination authorities on cross-border projects, as long as they do not cause additional bureaucracy, might result beneficial to ensure acceleration of the procedures.

→ The full report is published online at www.medreg-regulators.org

5.1. **Recommendations on the minimum requirements considered as necessary to ensure consumers protection in the field of Electricity and Gas in the Mediterranean region**
(June 2011)



This document identifies the minimum criteria considered as necessary to ensure consumer protection that could be shared by MEDREG members. Similarities have been identified in the fields of legal framework on competition; consumer protection; access and connection to networks; and regulatory role. Differences exist in the sphere of market design; organization and function; and processes and procedures (such as the handling of complaints, appeals and mediation, the relationship between operators, regulators and consumers, the policies towards vulnerable consumers).

THIS DOCUMENT IS DEVELOPED on the basis of questionnaires filled by 14 MEDREG countries. It contains seven main recommendations for Member countries:

- 1. Legal and institutional framework** • MEDREG countries should have both a general law on consumer protection and a specific law for the energy sector. • Regulators must be endowed with specific powers regarding consumer protection. • Regulators could develop standardized transparent and public procedures defining the relationship between consumers and operators/regulators. • Regulators should advance the sustainability of the electricity and gas sector through an incentive pricing related to environmental preservation, demand side energy efficiency and promotion of the renewable energy sources.
- 2. Overview of the Market** • MEDREG countries should accelerate the establishment of an appropriate regulatory framework to allow a more open market, taking into account consumers' rights and public service obligations. • To set end-user tariffs, countries should consider economic, financial and social objectives; the protection of the environment; efficient use of resources.
- 3. Networks Regulatory Framework** • Countries should establish clear and precise procedures in order to ensure equity and transparency in processing the access demand and in monitoring the operators' performance. • Countries should define the regulatory arrangements to be applied by operators when treating costumers.

CONCLUSIONS

The success of cooperation between MEDREG's member countries depends on the establishment of a common approach for consumer protection. This study represents a first step that has identified a set of values and best practices to be shared among MEDREG member countries with the aim to improve the effectiveness of mechanisms to protect consumers.

RECOMMENDATIONS

- All interested stakeholders, including MEDREG institutional partners, should circulate this report through different communication channels.
- It is advisable to perform a follow-up about the evolution of the electricity and gas consumer protection framework in the MEDREG countries.
- An update of this report and of its recommendations is expected every two years.

→ The full report is published online at www.medreg-regulators.org

5.2. **Summary assessment: survey on consumer protection in the electricity and natural gas sectors in the Mediterranean region**
(October 2010)



In 2008, MEDREG INS Ad Hoc Group set up a Task Force on consumer issues to present a clear picture of the consumer protection condition in the Mediterranean region, with a specific focus on vulnerable customers. The Task Force leader is CREG (Algeria), which was entrusted with the elaboration of a questionnaire and the drafting of a report in close collaboration with the Chairs of the INS Ad Hoc Group, HERA (Croatia) and CRE (France).

THE ANALYSIS OF THE INFORMATION PROVIDED on a voluntary basis by 14 Mediterranean Energy Regulators led to the following main results, organised around 7 thematic chapters:

- 1. Legal and Institutional Framework** The legal basis for consumer protection is ensured by regulators, governments, operators and consumer associations. The legal definition of "consumer" differs from one country to another.
- 2. Overview of the Energy Market** Electricity generation and energy supply are highly competitive in most countries and they are followed by specific bodies (Ministry, regulator, operators, etc.). Tariffs are regulated in most countries and the regulator is generally responsible for them. Consumers are categorized on the basis of consumption threshold, level of tension or pressure, and energy use.
- 3. Network Regulatory Framework** All countries have laws on electricity and natural gas, which defines the technical and commercial access networks conditions and procedures for setting connection costs.
- 4. Customer Protection and Transparency** Almost all countries have technical and commercial standards governing the quality of service, either

regulated or international. They can also be set by the regulator or proposed by the operator. Also, almost all countries have enacted a legislation to protect the economic interests of consumers and regulate contracts of supply and access. Most countries' regulators have the power to take decisions on complaints.

- 5. Accessibility** Access to transmission and distribution networks is regulated in 13 countries. Specific programs for developing energy infrastructures, including an opinion or formal approval delivered by the regulator, exist in 13 countries. Consumers support mechanisms are in place through a reduced price (specific category of consumers), a social tariff or a direct subsidy.
- 6. Education and Information** In most of the countries, regulators are responsible for ensuring customers information and education, together with other institutions and bodies (national and local governments, consumers health and safety authorities, operators and consumer associations).
- 7. Invoicing, Payment and Power Cuts** Most of the countries have defined the frequency and readability criteria of invoices, billing conditions and delays. The procedure regarding suspension or limitation of supply in case of non-payment is in place in all participating countries.

CONCLUSIONS

MEDREG members' regulators are encouraged to undertake a harmonization process following the practices identified by this study. Also, MEDREG countries should develop a code of conduct for consumer protection to better regulate the electricity and gas sectors.

RECOMMENDATIONS

- All interested stakeholders, including MEDREG institutional partners, should circulate this report through different communication channels.
- It is advisable to perform a follow-up about the evolution of the electricity and gas consumer protection framework in the MEDREG countries.
- An update of this report and of its recommendations is expected every two years.

→ The full report is published online at www.medreg-regulators.org

Conclusions



Following the first five years of MEDREG fruitful and successful activities, the key strategic challenges faced by Mediterranean countries imply the need for more regulation as an essential instrument for economic and social development, enhanced trade and exchanges, market opening to competition, security of energy supply, and development of new financing tools and mechanisms.

The objective of MEDREG is to implement strong, transparent and stable legal and regulatory frameworks and requires a long-term vision to 2020, designed at regional level. Continuous efforts are necessary to achieve a step-by-step and holistic approach towards regulatory harmonization. This approach may take into account not only market liberalization, but also investment in trans-Mediterranean infrastructure, climate change and the environment, innovative financial support schemes for renewable energy sources and energy efficiency, consumer protection, capacity building, information exchange and technology transfer.

MEDREG is firmly positioned in the long-term perspective towards the progressive integration of Euro-Mediterranean energy markets into a Mediterranean Energy Community, based on a bottom-up and inclusive process leading to a strengthened institutional setting. This 2020 target shall be reached with the decisive support of Energy Regulators, through the consolidated activities of MEDREG permanent Ad hoc Groups and Task Forces, and thanks to the continuous support provided by the European Union, the CEER and all the MEDREG partner institutions.

MEDREG

Association of Mediterranean Regulators for Electricity and Gas

Tel: +39 02 65565 557 / 524 / 553

Fax: +39 02 65565 342

Piazza Cavour 5, Milan 20121 (Italy)

www.medreg-regulators.org

info@medreg-regulators.org



www.medreg-regulators.org