

Ideas and Tools for Green Economic Growth in the Balkans

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INSTITUTE OF ENERGY
FOR SOUTH EAST EUROPE



The South East Europe Region Defined





Presentation Outline

- What do we mean by Green policies?
- Why Green policies?
- Policies and technologies
- Different types of policies for different countries
- Energy Efficiency and Energy Management
- Renewable Energy Sources
 - Solar
 - Wind
 - Mini Hydro
 - Biomass
 - Geothermal
- Funding Mechanisms for RES
- Urban and Regional Planning parameters
- National energy policies attuned to Green Growth



Green Policies: What are they about?

- In my dictionary Green Policies and the consequent green growth they espouse cover a wide range of options ranging from energy conservation, to energy management and RES
- There appears to be a huge misunderstanding between Climate Change mitigation policies and Green Policies. The near identification of Climate Change action to Green Policies does not necessarily help their implementation
- The need for differentiation of the energy mix at both national and regional level is of paramount importance for energy security and for optimum energy management. In that respect “Green Policies” have a very positive role to play



Green Policies: What are they about?

- “Green Policies” are much broader in definition and scope content than RES or Climate Change mitigation measures, as key have to do with the way of living and the relationship of humans to their habitat
- “Green Policies” should really start from houses and buildings in general and progress to communal spaces, public buildings and to grid level and autarkic communities
- “Green Policies” can play a key role in promoting energy self sufficiency at local, national and regional level but also contribute towards decentralized economic growth



Energy Policy

- Energy Policies in SE Europe and the Balkans are directly affected by decisions and policies taken at EU level
- Direct implications for RES and Energy Efficiency
- Policies and decisions affect targets and infrastructure investment
- The 20-20-20 policy is already affecting RES penetration, grid interconnections and energy efficiency

The EU Angle: Impact of EU decisions on the region



- EU decisions and Directives will have an impact on SE Europe Energy developments by 2014, 2015, 2020 and will affect:
 - energy strategy, energy mix
 - energy infrastructure
 - energy demand

The EU Angle: Energy Infrastructure Strategy for 2020



European Council Decision of 4 Feb 2011:

- Completing the internal market **by 2014** – cooperation of ACER, ENTSOs, Commission
- Infrastructure is key for achieving 20-20-20 targets **by 2020**
- Ending isolation of energy islands **by 2015**
- **Financing for infrastructure:** mainly market-based complemented by limited public funds, notably for security of supply/solidarity
- Streamlining and improving **authorization** procedures

Energy and climate targets at EU level

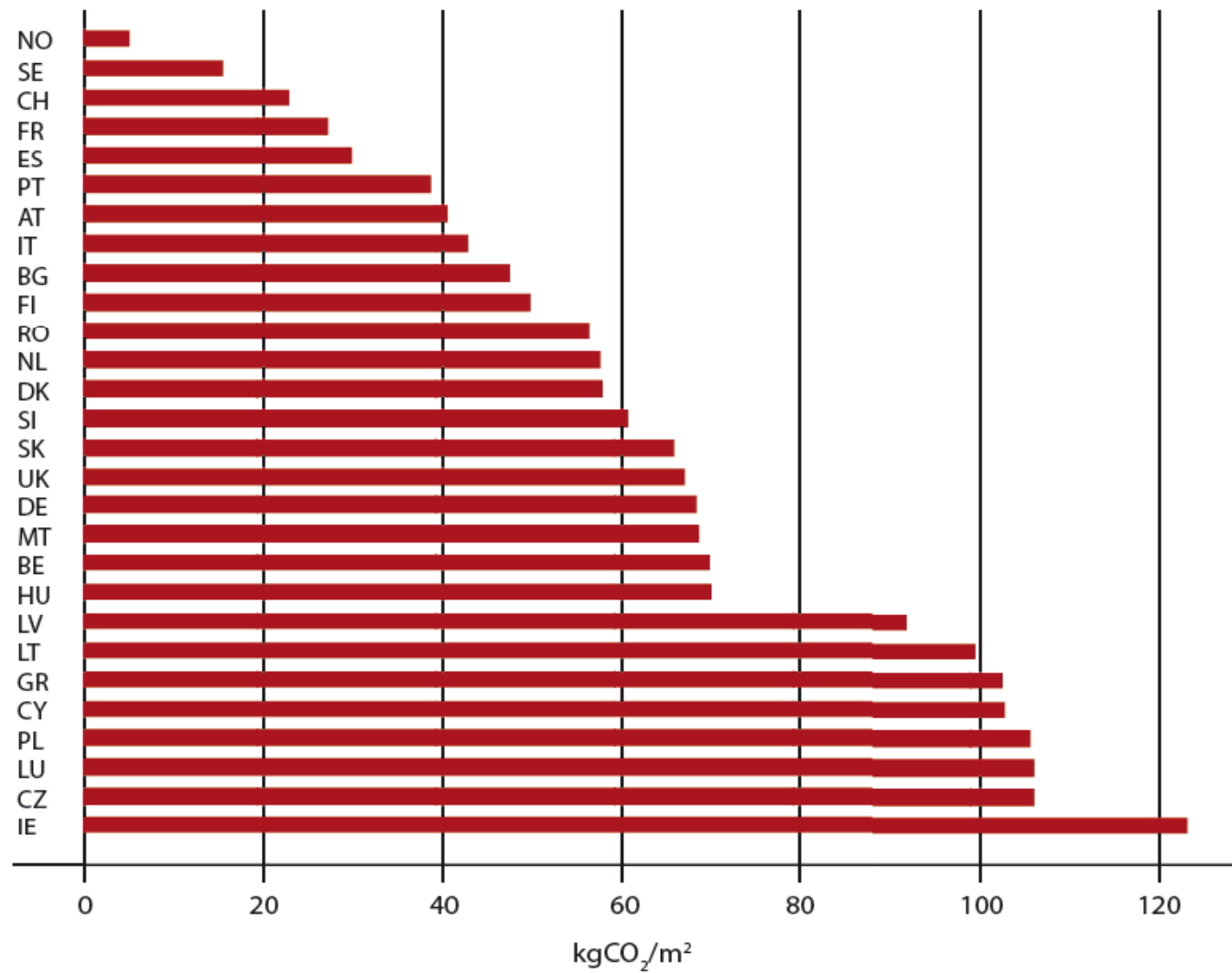
	Energy efficiency	Emissions	RE share
2020 (cross sectoral targets)	Saving 20% of the EU's energy consumption compared to projections for 2020 ¹⁵ (non-binding target)	At least a 20% reduction of greenhouse gas emissions by 2020 compared to 1990 ¹⁶ -30% under specific circumstances ¹⁷ (binding target)	20% share of renewable energies in overall EU energy consumption by 2020 ¹⁸ (binding target)
2030 (non-binding aim for the building sector; residential and non-residential)	N.a.	Min. -37 to -53% compared to 1990 level ¹⁹	N.a.
2030 (non-binding aim for the power sector)	N.a.	Min. -54 to -68% compared to 1990 level ²⁰	N.a.
2050 (non-binding aim for the building sector)	N.a.	Min. -88 to -91% compared to 1990 level ²¹	N.a.
2050 (non-binding aim for the power sector)	N.a.	Min. -93 to -99% compared to 1990 level ²²	N.a.

The following steps could be milestones in the development toward a full and effective implementation of nearly Zero-Energy Building

What to do	Whose responsibility
Agreement on a concrete outline of a definition for nearly Zero-Energy Buildings, based on the EPBD recast text.	EU Member States, EU Commission, EU Parliament, Stakeholders.
Create benchmarks for suitable nearly Zero-Energy Buildings in different Member States as a basis for comparison.	EU Member States, EU Commission, Stakeholders.
Agree on a corridor for the value of an overarching threshold for nearly Zero-Energy Buildings, e.g. the 0-3 kg CO ₂ per m ² and year.	EU Member States, EU Commission, EU Parliament.
Generate a common reporting format for Member States to be used for reporting national plans on how to move towards nearly Zero-Energy Buildings.	EU Member States, EU Commission.
Facilitate and support implementation of new nearly Zero-Energy Buildings already on the way to 2019/2021 by helping investors understand the necessary up-front investment, by helping to build planning and implementation capacities.	EU Member States, EU Commission.
Work on a definition for buildings renovated to a nearly Zero-Energy Buildings target. This could be a similar definition, which is softened in specific aspects, acknowledging the different limitations when dealing with existing structures.	EU Member States, EU Commission, EU Parliament, Stakeholders.

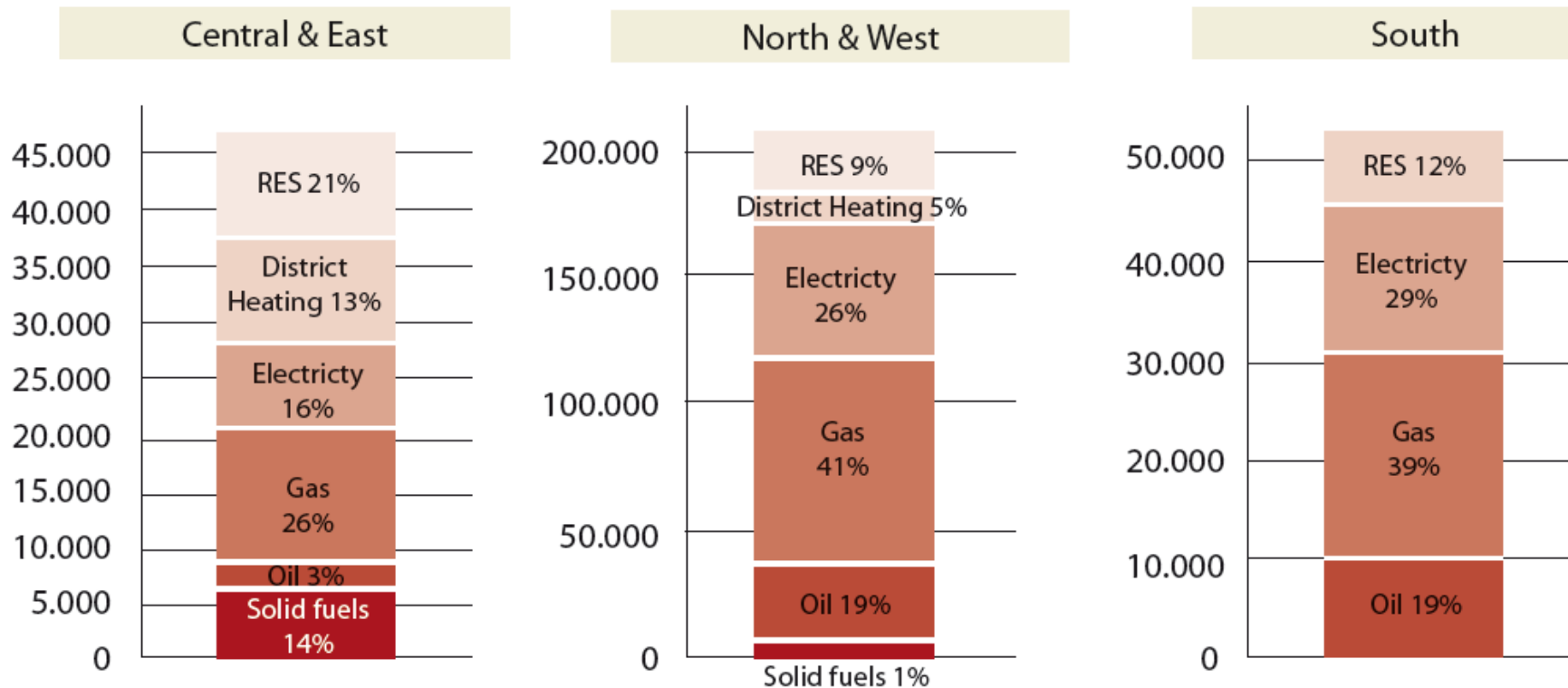


CO2 Emissions per Useful floor Area

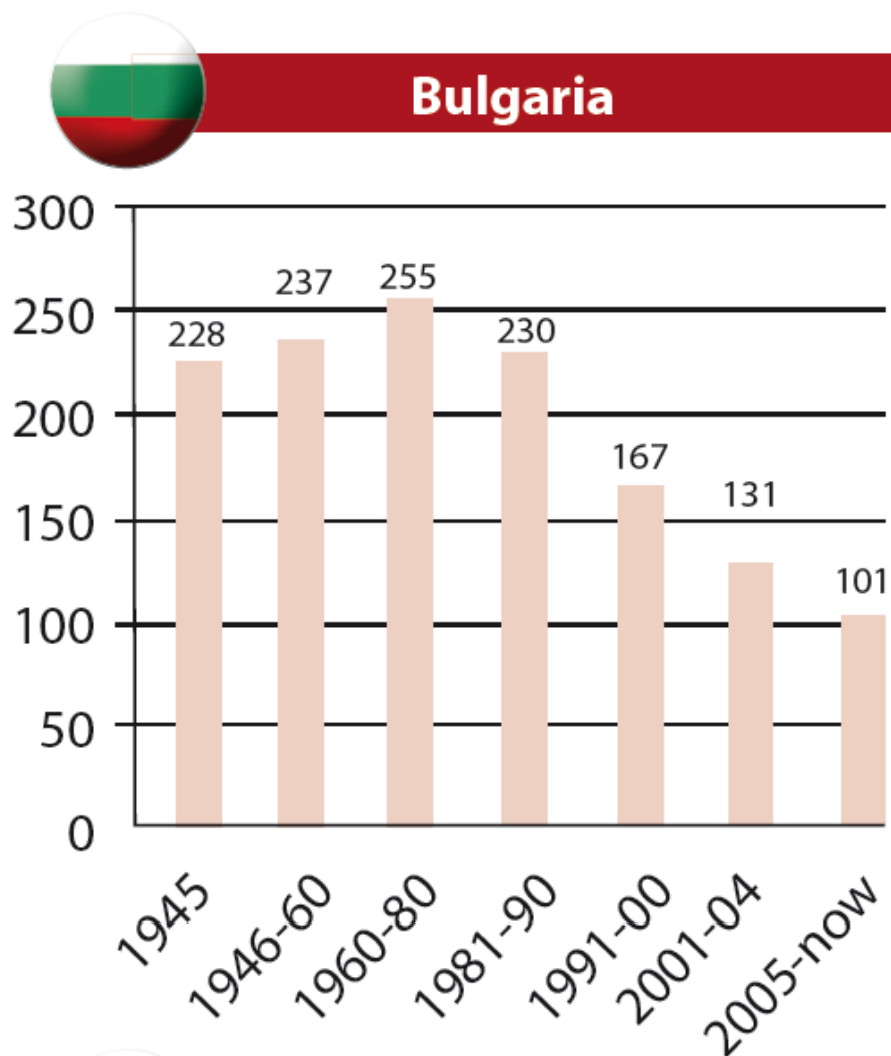




Final Energy Mix in Residential Buildings (thousand toe) by Region



Bulgaria: Average heating consumption levels in terms of final energy use (kwh/m²a) of single family homes by construction year



Types of financial programmes and incentives on the energy performance of buildings



Renewable Energy Sources in SE Europe



Status of Renewable Energy Sources in S.E. Europe



- Solar Thermal: *Well developed markets in Greece, Cyprus and Turkey*
- Solar PV: *Approximately < 800 MW total PV installed, with Greece being the most developed market, followed by Bulgaria*
- Wind: *Key players: Greece, Turkey, Bulgaria, Romania
Installed Capacity < 5.100 MW*
- Mini Hydro: *Well developed in Western Balkans.
Considerable Potential in Greece and Turkey
1,700 MW approx. of installed capacity*
- Biomass: *Embryonic market for power generation but extensively used for house heating*
- Geothermal: *Large untapped potential in Greece, Turkey, Bulgaria, Romania, Serbia and Croatia*

S.E. Europe Renewables – Solar Thermal Market



Installed capacity of solar collectors in 2008 and cumulative capacity

No	Countries	Installed capacity in 2008		Cumulative capacity, end 2008	
		in m ²	in MWth	in m ²	in MWth
1	Bulgaria	6,000	4.2	62,000	43
2	Cyprus	40,550	28	665,300	465
3	Greece	300,000	210	3,550,000	2,485
4	Romania	10,000	7	79,600	56
5	Turkey	NA	NA	12,000,000	8,400

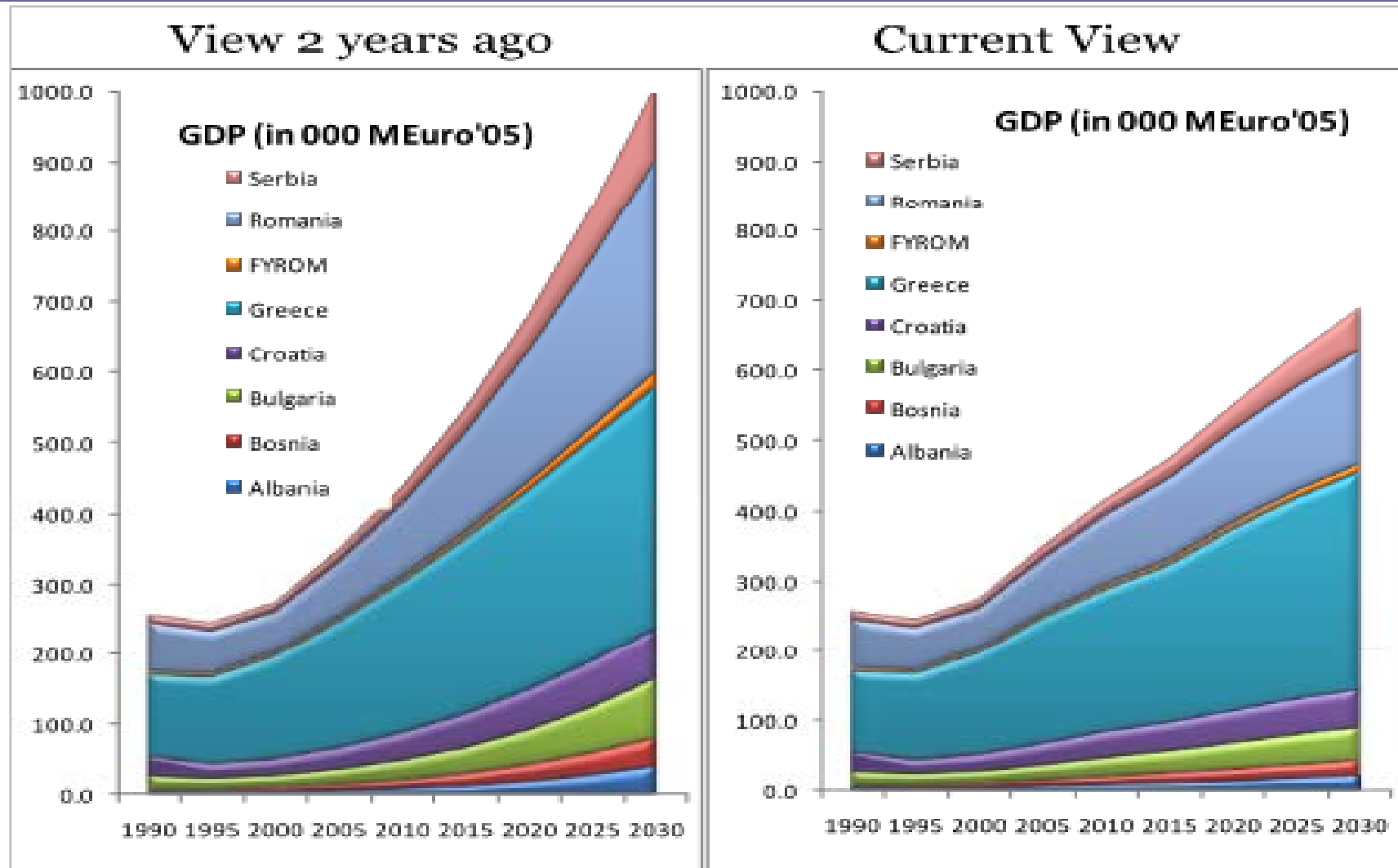
RES in S.E. Europe



RES in Gross Final Energy Consumption						Target
%	2005	2020	% diff	2030	% diff	2020
Albania	32.6	25.7	2.8	26.0	5.3	?
Bosnia	18.8	20.9	4.7	24.4	7.9	?
Bulgaria	11.1	23.5	12.2	34.3	18.1	16%
Croatia	13.6	16.3	2.9	18.7	5.2	?
Greece	7.6	17.8	7.1	22.5	10.1	20%
FYROM	15.7	22.8	5.8	25.6	10.6	?
Romania	18.9	25.8	6.8	29.0	8.2	24%
Serbia & Montenegro	18.9	19.5	4.3	18.7	5.1	?
Balkans excl. Turkey	14.9	21.4	6.5	24.8	8.9	
Turkey	15.5	13.3	3.7	14.6	5.4	?
All SEE	15.2	17.0	5.6	19.0	7.5	
EU27	8.6	20.0	5.2	22.2	3.8	20%

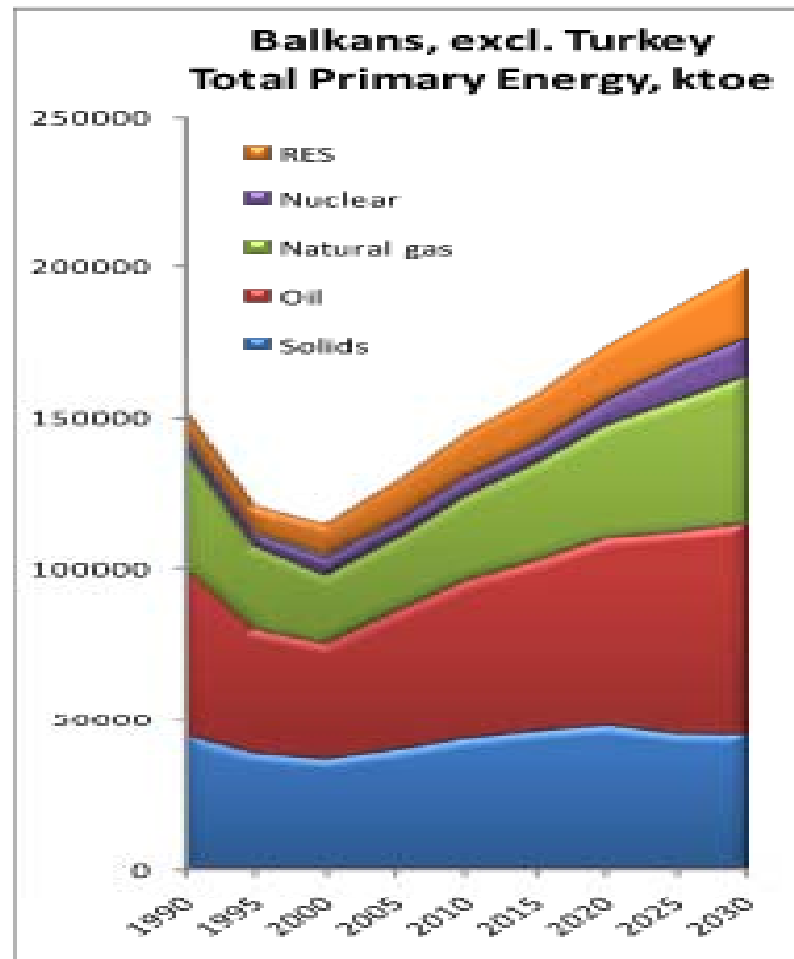


Macroeconomic Projections for S.E. Europe

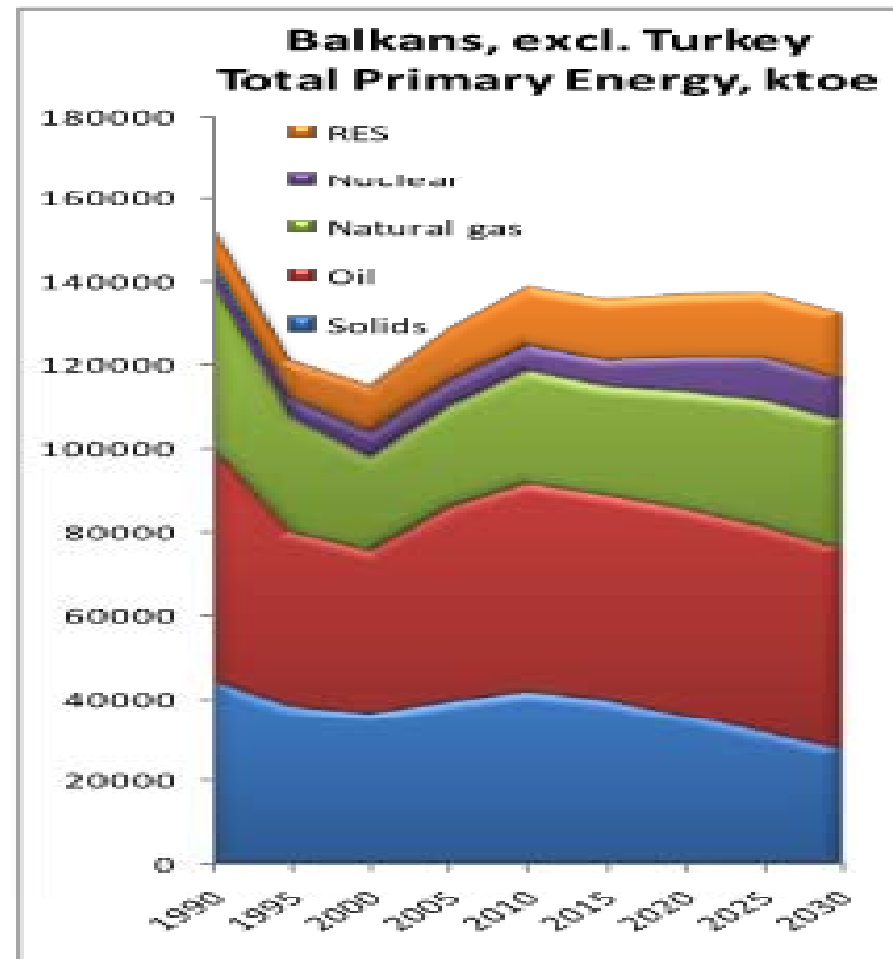


Primary Energy Consumption 1990-2030

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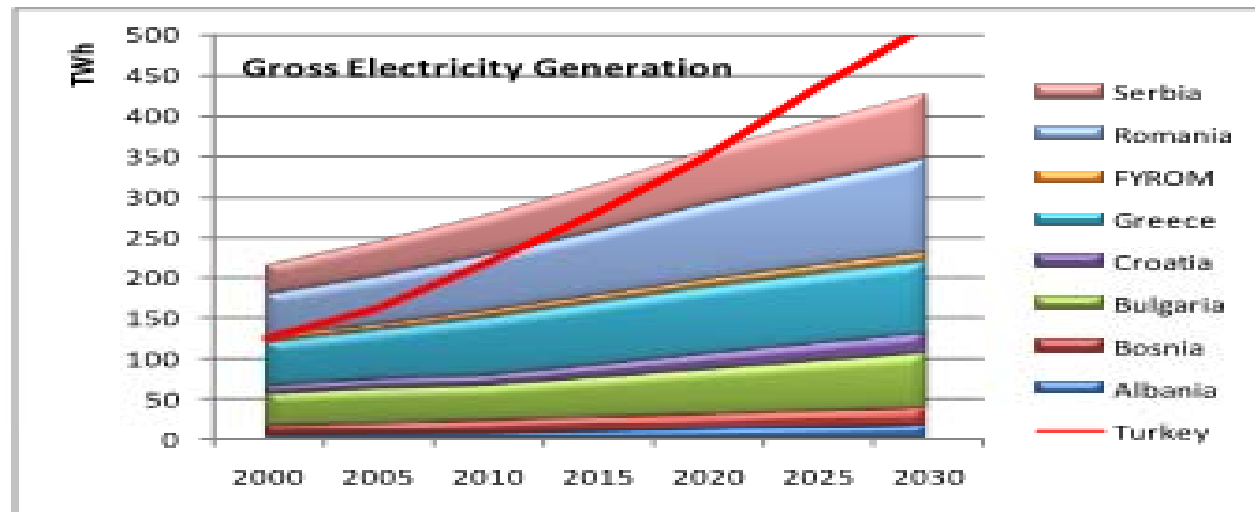
Current View



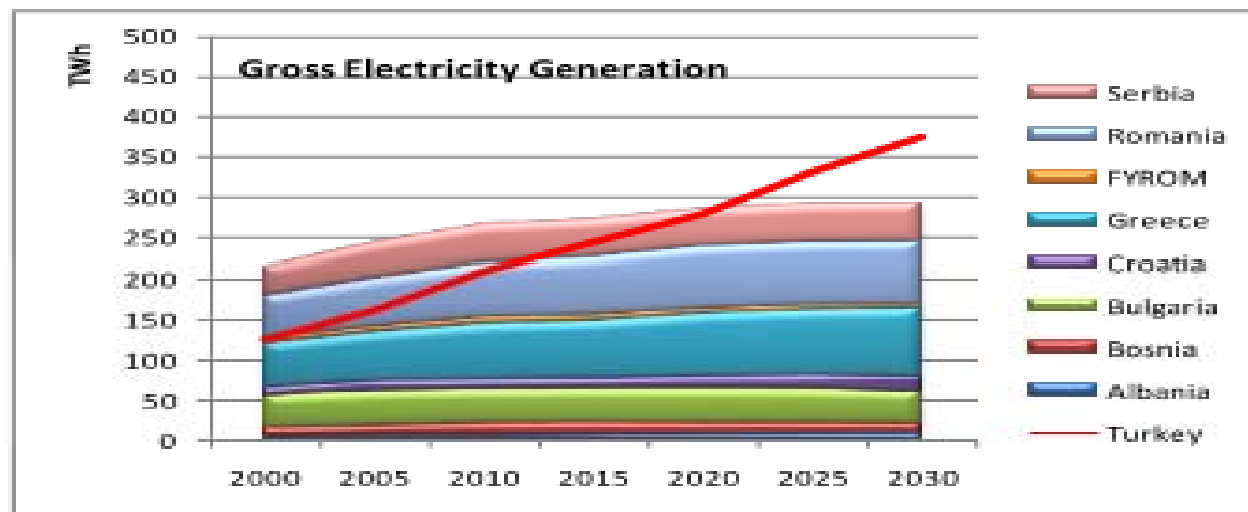
Electricity Generation in SE Europe (2000-2030)



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Current
View



Total Energy Infrastructure Investments per Country



	<i>(in million Euros)</i>
✓ Albania	8.800
✓ Bosnia & Herzegovina (Republic of Sroksa only)	3.855
✓ Bulgaria	17.150
✓ Croatia	7.000
✓ Cyprus	19.000
✓ FYROM	1.850
✓ Greece	35.300
✓ Kosovo	4.620
✓ Montenegro	3.960
✓ Romania	36.500
✓ Serbia	10.665
✓ Turkey	70.500
TOTAL	219.200

Anticipated Total Energy Infrastructure Investment Per Sector in SE Europe by 2020



Sector	Investments (€ Million)
Oil Upstream (<i>Research, Exploration and Production</i>)	33,820
Oil Downstream/Midstream (<i>incl. liquid biofuels</i>)	23,100
Electricity <ul style="list-style-type: none"> ▪ Thermal Plants ▪ Nuclear Plants ▪ Lignite Mine Development ▪ Grids - Upgrade and Expansion (<i>incl. metering systems</i>) ▪ HV Transmission Lines 	89,692
Gas <ul style="list-style-type: none"> ▪ Main and branch gas pipelines ▪ Gas Storage ▪ LNG Terminals and Liquefaction plants ▪ Town grids 	24,955
RES (<i>Wind, PV, Biomass, Mini Hydro, Geothermal</i>)	47,633
Intraregional Mega Projects <ul style="list-style-type: none"> ▪ Oil Pipelines ▪ Gas Interconnectors ▪ Main gas pipelines 	20,800
Total	240,000

Some concluding remarks on Green Economic Growth



- Green Economic Growth to be promoted as an all encompassing concept inclusive of the energy parameter
- Demand side management is key in developing Green energy awareness
- There is a need to stress the link between Energy and Environment i.e. clean energy leads to better environment
- Energy education is vital part of overall environmental awareness
- Promoting and understanding of energy efficiency policies at school and home is first step towards implementing large scale policies
- RES promotion and implementation at local and regional level will also have great impact in the implementation of Green policies



**Thank you for
your attention**