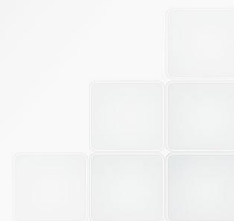




Cost Supply Curve for Italy

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Semi-annual ETSAP meeting - Paris, June 17, 2013

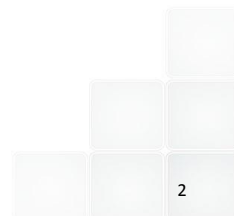


1

Outline



- Overview of Renewable situation in Italy
- Scenario projections to 2030
- Cost supply curve - Italy
 - methodology and results
- Comments

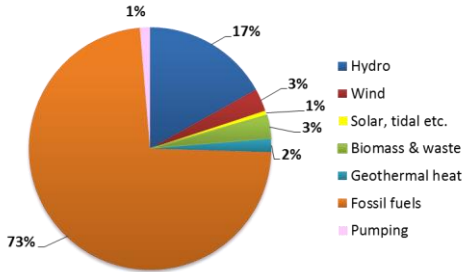


2

Overview of Renewable situation in Italy



Gross Electricity Production in 2010 (302 TWh)



Source: TERNA

Total Final Energy Consumption

ktoe	2010
Solids	2908
Oil	49087
Gas	38499
Electricity	25736
Derived Heat	3332
Renewables	5250
- wood	3443
TFEC	124812

Source: EUROSTAT

RNW share - 2010 :

$$\frac{RNW_{th} + RNW_{elc\ end\ use}}{TFEC}$$

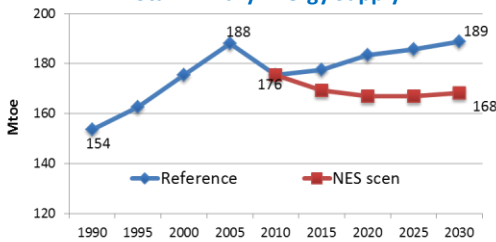
9.5% (including traditional biomass)
7.5% (excluding traditional biomass)

3

Scenario projections



Total Primary Energy Supply

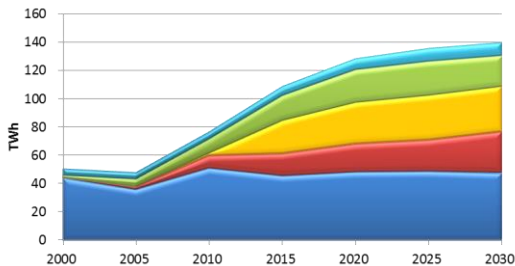


Source: EUROSTAT, ENEA scenarios

In March this year the Italian Ministry for Economic Development formally approved the National Energy Strategy that sets targets to 2020 for all energy sectors. Main policies for the Strategic Scenario (NES) concern:

- energy efficiency;
- support to renewables (ele + th);
- increase in domestic production of oil and gas.

Electricity production from RNW



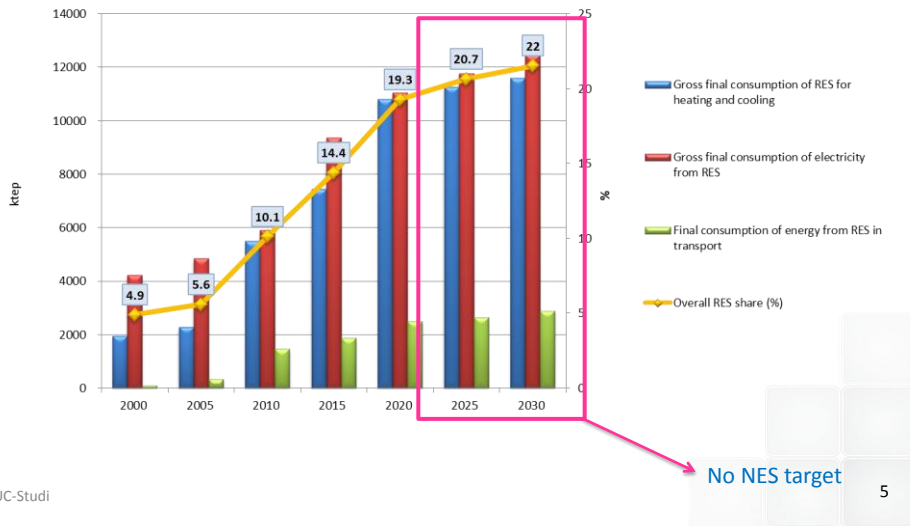
40% RES share in electricity production in 2030

4

Scenario projections



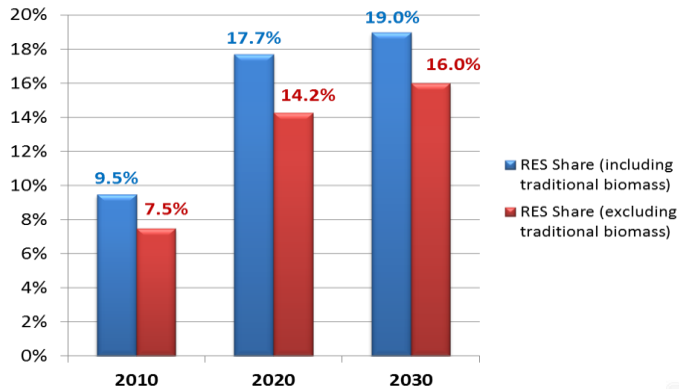
Energy from Renewables by sectors and shares of Gross Final Consumption (2009/28/EC) – NES Scenario



Renewable share in 2030



Renewables Share in Total Final Energy Consumption – NES scenario



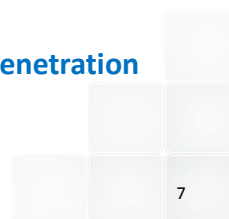
The Italian National Energy Strategy already includes the doubling of RES share (even excluding traditional biomass) and in fact goes beyond EU directive targets.

Creating a cost supply curve for Italy

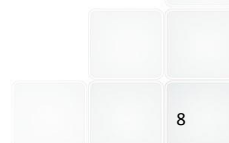
- The purpose is to analyse the feasibility and cost of doubling the 2010 share of RES by 2030, excluding traditional biomass.
- The Italian National Energy Strategy already includes the doubling of RES share (even excluding traditional biomass).



The NES Scenario represents the maximum RE penetration



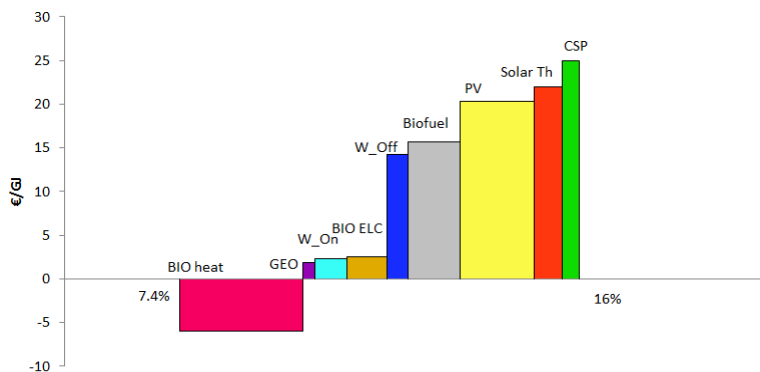
- The RES target in the NES was obtained by imposing different constraints (energy efficiency, technology, ecc).
- We have run new scenarios removing or decreasing each constraint on specific RES technology group one at a time
- Each time we computed incremental system costs of the NES scenario with respect to the new case. These incremental costs are then attributed to each technology group.



Cost Supply Curve - Italy



Cost supply curve - fuel substituted

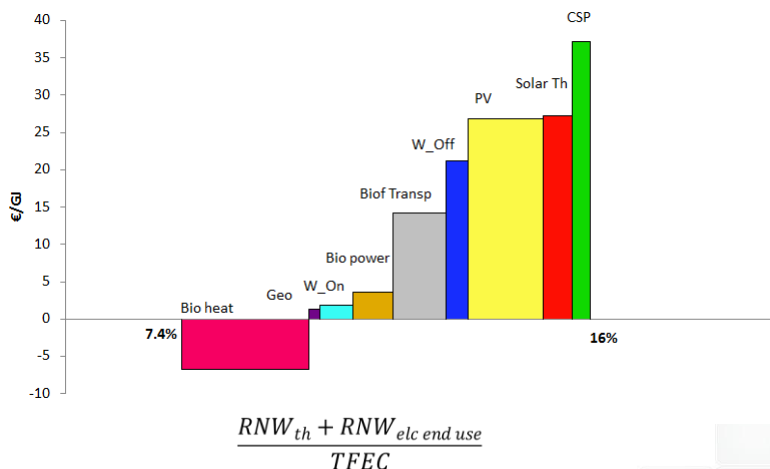


Assessments shall include CO2 price: 20 €/tCO2 in 2030

Cost Supply Curve - Italy



Cost supply curve based on final energy substituted



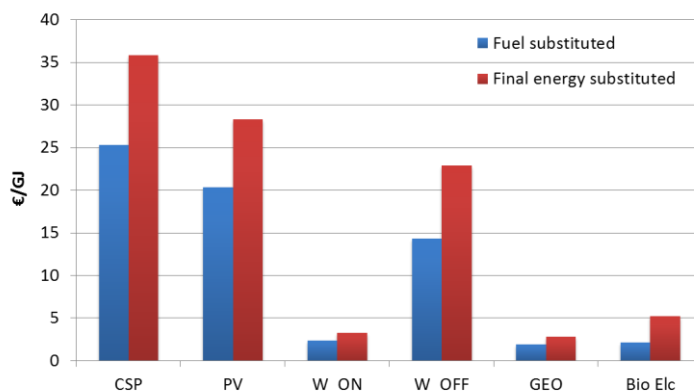
$$\frac{RNW_{th} + RNW_{elc\ end\ use}}{TFEC}$$

Assessments shall include CO2 price: 20 €/tCO2 in 2030

Power Sector



Cost differences in power sector



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Remarks



- In this exercise we cannot see how the system cost changes with each incremental increase of the renewables share. Instead, costs are obtained by lowering separately each renewable option from the 2030 level in the NES scenario to the 2010 level.
- Each new scenario constructed this way keeps the remaining RES options to the levels of the NES scenario, while the fossil based options are not constrained.
- In this analysis the cost of the incentives to renewables is not included
- Energy demand is determined/impacted by the policies included in the NES (efficiency targets, planned infrastructure, etc.)
- The assumptions of the investment cost of the technologies are very important to compare the results

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THANK YOU

