



# ARE THE NDCs SETTING US ON THE DESIRED CLIMATE PATH?

OME – Observatoire Méditerranéen de l'Énergie

At COP22, the Mediterranean countries will be standing by their climate change commitments, especially in the energy field. The challenge is to be able to reach the objectives of the Agreement and deliver secure, affordable and sustainable energy services to the Mediterranean citizens. The expectations are high but what do those commitments translate into in terms of energy trends? How can these goals be achieved? Which energy types, which sectors will be concerned? What policies need to be put in place to ensure the renewable targets and energy efficiency expectations are met? But more importantly, is the path embarked upon sufficient to meet the temperature rise cap announced?

The Paris Agreement adopted by the 21st Conference of the Parties to the Climate Convention, COP21, marked a historical step in taking action on climate change. After years of negotiation, countries agreed to limit global temperature rise below 2 degrees Celsius, while pursuing efforts to keep temperature rise to 1.5 degrees. The Mediterranean countries have nearly all committed to modifying their energy paths in the Paris Agreement during COP21, by developing Intended Nationally Determined Contributions (INDCs) with ambitious engagement for mitigation and adaptation to climate change, showing that the ambition is there and actions in the energy sector, and in particular for renewable energy and energy efficiency, are being addressed by Mediterranean countries.

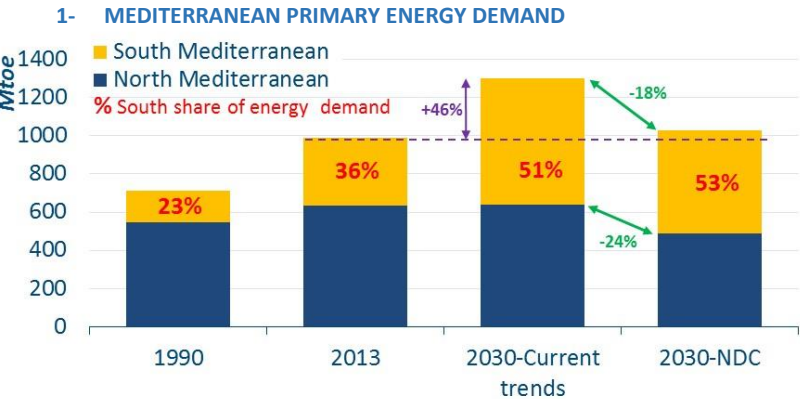
Three general targets for 2030 have been broached in the INDCs/NDCs: Energy Efficiency, Renewables in electricity generation and GHG emissions. Here below the summarized targets for each of these three areas:

Country	Energy efficiency	Renewable Energy	CO <sub>2</sub> mitigation
Algeria	-9% of energy consumption	27% of electricity generation	Min of -7% (up to -22% if intern. financing)
Israel	-17% of electricity consumption (vs. BAU)	17% of electricity generation	-23% compared to BAU
Jordan	-	11% of the energy mix (2025)	Min of -1.5% (up to -14% if intern. financing)
Lebanon	-3% in electricity demand vs. BAU (up to -10% conditional target)	15% of electricity and heat (up to 20% conditional)	Min of -15% compared to BAU (up to -30% conditional)
Morocco	-15% of energy consumption	52% of electricity capacity	Min. of -13% compared to BAU (up to -34%)
Tunisia	-30% of energy demand vs. 2010	30% of electricity generation	Min of -9% compared to BAU (up to -38%)
Turkey	-	26 GW + full hydro potential (~36 GW)	-21% compared to BAU
EU (Cyprus, France, Greece, Italy, Malta, Portugal, Slovenia, Spain)	A minima 27% decrease of energy demand in 2030	A minima 27% increase of RE in 2030	-40% GHG compared to 1990

Based on these targets, within the frame of their cooperation, OME, MEDENER and ADEME, have built a comprehensive energy scenario for each Mediterranean country, named “NDC Scenario”. Despite no quantification for Egypt and no INDCs for Libya, Syria and Palestinian Territories, the NDC scenario assumed the step-up of energy efficiency plans and additional renewables to the mix.<sup>1</sup> The NDC scenario also assume availability of international financing.

## ENERGY EFFICIENCY: CHANGING OUR CONSUMPTION PATTERNS FOR THE BETTER

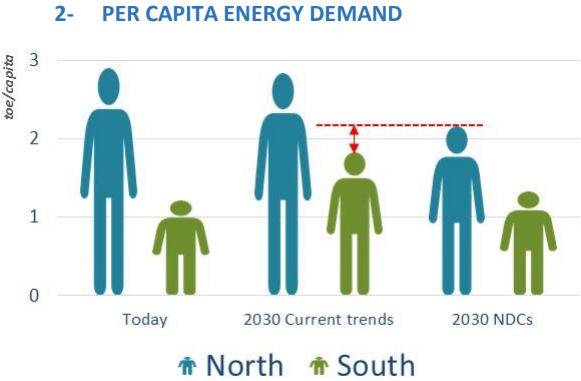
Looking at current trends and where they lead us less than 15 years from now, there is clearly no alternative than changing our energy course. Indeed, keeping-up the current trends, with mild efforts to bring efficiency and renewables to the energy mix will lead to an increase in energy demand of 46%



for South Mediterranean countries. However, achieving the NDCs in full, would stall the increase in primary energy demand to under 4% compared to current levels for the whole region and a -21% savings compared to current trends in 2030. [1] The South Mediterranean primary energy demand would be 18% lower in

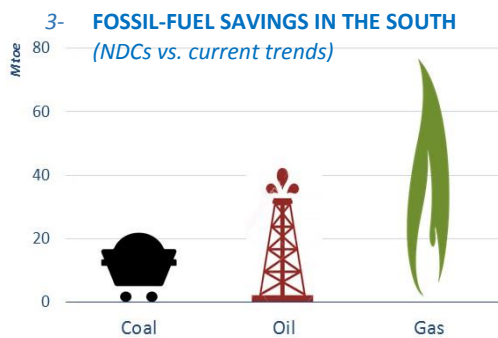
the NDCs Scenario than with current trends but still 35% more than today’s demand. Regardless of the scenario considered, by the end of the outlook period, the South Mediterranean energy demand would thus have exceeded that of the North.

The increase in energy demand in the South is unavoidable and necessary, even with energy efficiency and renewables added to the mix, as the actual per capita energy demand is very low in the South compared to the North. [2] Indeed a person in the North Mediterranean consumes on average nearly 3 times more energy annually than his counterpart in the South Mediterranean. In the NDC scenario, by 2030, this discrepancy would be greatly reduced but the North average would still remain well above the South Mediterranean ratio. With sustained economic growth expected in the South, per capita energy demand is expected to increase to accommodate access to better and more modern energy services. Achieving the NDCs would enable per capita energy demand to be capped at 1.3 toe in the South and be reduced to 2.2 toe in the North by 2030.



<sup>1</sup> For the Countries with no INDC or no clear targets, we used the Proactive Scenario of the OME, presented in the *Mediterranean Energy Perspectives 2015* (MEP 2015) OME publication.

In the NDCs scenario, increased energy efficiency and additional renewables usage would lead to



striking fossil fuel savings by 2030 in the South Mediterranean. [3] Indeed a total of over 140 Mtoe of fossil fuels could be spared in 2030 alone if the NDCs are realized in full. Over half of these fossil fuels savings would stem from natural gas especially in the power generation sector – electricity demand would be reduced by 19% compared to current trends. Reduced electricity demand would also bring savings of coal, notably in Turkey. Savings in oil will originate from all sectors but mainly from the transport sector where

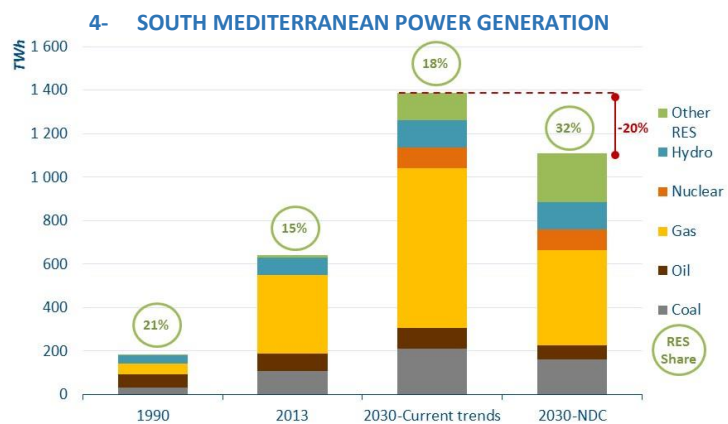
efforts to curb vehicle usage and the improved efficiency of engines would reduce the consumption of diesel and gasoline. Overall energy demand in the transport sector would be reduced by 8% compared to current trends in the South. Savings would reach 10% in the industry sector and 11% in the buildings (services and residential) sector.

As a result the share of fossil fuels in the total primary energy mix would drop to 70% compared to 76% today.

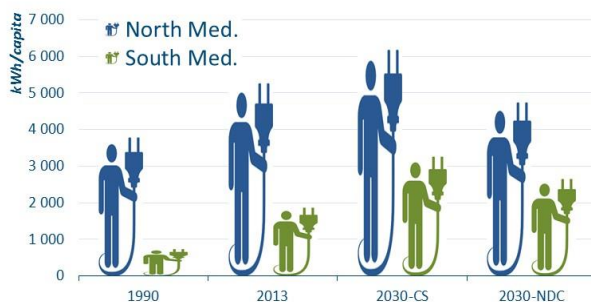
## POWER DEMAND: GOING GREEN

The NDC scenario impacts the power generation on two fronts; firstly with lower electricity demand and secondly with a bigger share of renewables in the mix. While in the South current trends will see the renewables share only reach 18% of the mix compared to today's 15%, the share of renewables could reach 32% in the NDCs scenario – a third of the electricity mix. [4] In the North Mediterranean, Renewables could account for two thirds of the generation mix which would in turn mean that half the electricity produced in the region in 2030 would be produced from renewables.

In the South, over 20% electricity can be saved in the power generation alone in the NDC scenario at the expense of coal and mostly natural gas. However, in the South, electricity generation would still need to increase by 72% from today's levels.



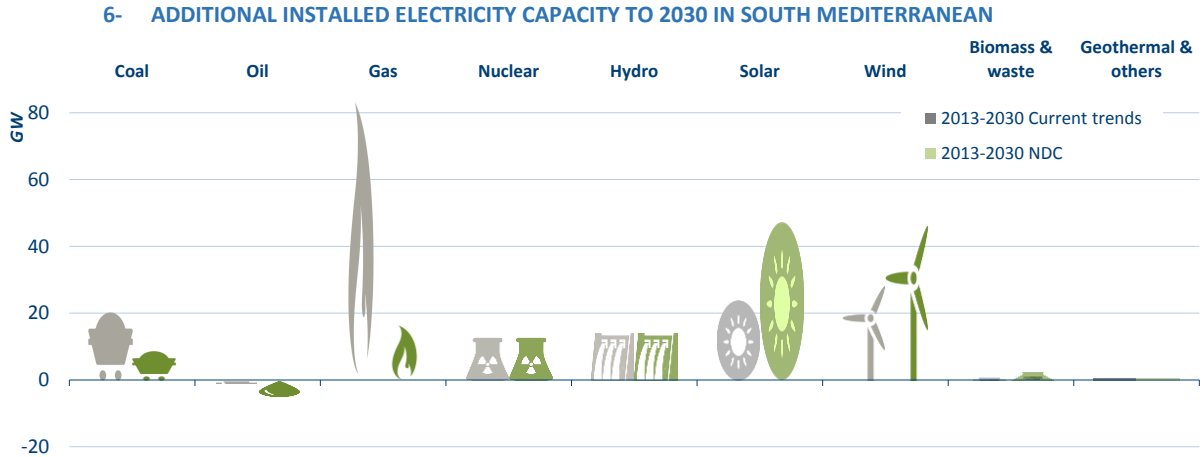
### 5- PER CAPITA ELECTRICITY DEMAND



Currently, a person from the North consumes on average nearly 5 times more electricity annually than a person from the South. [5] Per capita electricity demand is expected to more than triple in the South in the NDC scenario by 2030 as more people gain access to modern energy services (TV, internet, air conditioning etc.). However, Compared to North levels, per capita electricity demand will remain very low

in South Mediterranean countries, regardless of the scenario. In 2030, per capita electricity demand will still be roughly half that of the North.

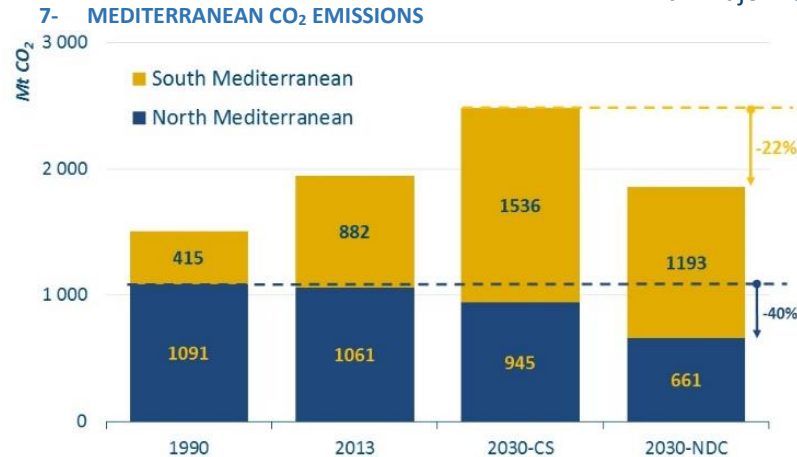
To produce the corresponding electricity demand, under current trends, 184 GW of additional electricity capacity will need to be installed in the South Mediterranean countries by 2030 (274 GW in total Mediterranean). Nearly 60% of these additions in capacity would be fossil fuel based (mainly through gas-fired capacity) while renewables would only account for a third of these capacity additions. In the NDC scenario not only would merely 143 GW need to be added to the mix in the NDCs scenario (40 GW avoided) but more than three quarters of these additions would be renewable based. [6]



Two thirds of capacity additions in the NDC scenario in the South will be solar and wind based with 47 GW and 46 GW added respectively. Over the 2013-2030 period in the South, wind capacity would be multiplied by 12 (from 4 GW in 2013 to 50 GW in 2030) and solar capacity would be multiplied by 87 (from 0.4 GW in 2013 to 48 GW in 2030).

## IS IT FAREWELL TO INCREASE IN GREEN GAS EMISSIONS?

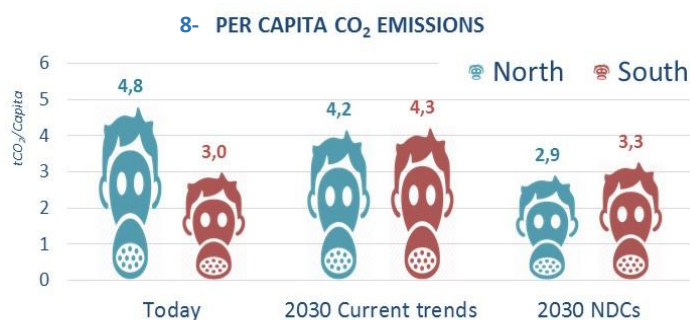
The NDCs would achieve the up-to-recently unthinkable: actually reducing Mediterranean CO<sub>2</sub> emissions by 2030 compared to 2013 levels (by -14%). This has to be contrasted by sub-region, with



a major decrease of 40% in the North compared to 1990 and a 22% reduction from current trends in 2030 for the South (South emissions would still be increasing by 35% compared to 2013). [7]

The spectacular increase of renewables and energy efficiency savings would bring down per capita CO<sub>2</sub> emissions in the North below that of the South. [8]

The disparity in the evolution of the per capita CO<sub>2</sub> emissions between the two shores of the Mediterranean ascertains that while the North has definitely embarked upon a clear energy transition path (pending that it does indeed comply with its NDCs commitments in full), while the South Mediterranean countries could do better on both counts than what has been announced in the NDCs.

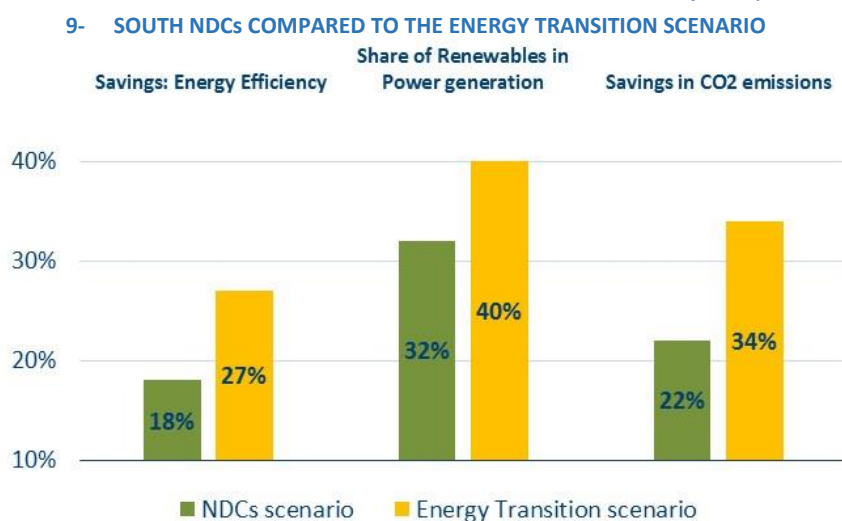


The NDCs, while definitely a major improvement from current trends is still not, at least for the South Mediterranean countries, in line with the climate challenge and more importantly can be topped because the potential is there.

## NDCs: ARE WE AMBITIOUS ENOUGH? GETTING ABOARD THE ENERGY TRANSITION PATH

The NDCs scenario is already in itself a formidable challenge for all countries of the Mediterranean and more so for the South Mediterranean countries. The Paris agreement has led many countries to address comprehensively the interlink between energy and environment and to translate it in clear targets. However, despite the announced targets, the outcome, once translated into energy paths is still below the potential in the South, especially considering the untapped renewables potential and the energy efficiency prospects. Most of the additional demand in the Mediterranean regions will come from the South in the coming years and will translate into additional vehicles, additional housing, and entire new cities to be built. In this context, ambitious energy efficiency actions, even if only on new additional demand, could be of much greater magnitude than those announced provided clear and unrelenting policies and measures are put in place rapidly and enforced.

Before the INDCs were announced, MEDENER and OME jointly investigated a *Mediterranean Energy*



*Transition Scenario*, an ambitious scenario that goes beyond the plans and targets announced by governments and policy makers. The *Energy Transition Scenario* assumes the implementation of those measures that are currently the most technically, economically, and politically mature for large-scale roll-out of

energy efficiency and renewable energies. This scenario assumes no major technology breakthrough, “just” implementing, more substantially, existing technologies and enforcing comprehensive and sound energy efficiency policies and measures and across all Mediterranean countries. It is therefore totally feasible with current know-how.

Under the *Energy Transition Scenario*, the Mediterranean region energy savings could reach 27% in the South (compared to current trends), renewables could account for 40% of total power generation and CO<sub>2</sub> emissions would be 34% below current trends in 2030. All well above the NDCs. [9]

At a time where more and more say that we may have passed the point of no return on climate change, there is yet hope, with no major technology breakthrough, to still reverse current trends and achieve the improbable. But the clock is definitely ticking and time for compelling action has arisen.<sup>2</sup>



**OME**  
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At the heart of Mediterranean Energy Cooperation, OME is a gathering platform and a Think Tank of reference making energy an instrument for regional integration.

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## CLIMATE CHANGE AND ENERGY TRANSITION IN THE MEDITERRANEAN

Join us at COP22 in Marrakech, Morocco, to exchange about how to reach a successful energy transition in the Mediterranean region at the following side-events:

**10 November**, 11.00am-12.30 am  
COP22 ONEEE-OME-MEDTSO  
Integration of renewable energies into the national electrical grids  
Green Zone,

**11 November**, 1.00pm-2.30pm  
COP22 OME-MEDENER with support of ADEME  
What energy transition for the Mediterranean region under national defined contributions countries?  
Green Zone – Room 8,

**11 November**, 4.45 pm-6.15 pm  
COP22 OME-UPC  
Climate change and energy transition in Mediterranean Region: Opportunities through NDCs cooperation  
Blue zone – Arabian room,

**11 November**, 6.30pm-8.00 pm  
COP22 ADEME-MEDENER-OME  
Energy transition in the Mediterranean Region: How to reach the NDCs goals and beyond through a strong regional cooperation?  
Blue zone-Pavilion Europe

<sup>2</sup> For more details on the *Energy Transition Scenario*, see the joint study OME/MEDENER, *Energy Transition in the Mediterranean: 2040 scenario*.