



# Italy towards permanent daylight saving time? Expected benefits for health, climate and society

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The issues of Governments' commitment towards Climate Change as well as the adaptation and mitigation strategies that need to be fostered have been highlighted in a recent editorial in *The Lancet Regional Health – Europe*.<sup>1</sup> However, the European Green Deal objectives became more challenging due to the energy crisis triggered by the international situation. In this frame, looking also at expected benefits on climate and health, the Italian Society of Environmental Medicine (SIMA) has launched a proposal to the Prime Minister Mario Draghi calling for permanent adoption of Daylight Saving Time (DST) in Italy, reaching a transversal consensus among the political parties and 55,000 citizens' adhesions in 7 days on a *change.org* petition.<sup>2,3</sup>

Given the transition from an agricultural to a modern society, fewer people would suffer from delayed early-morning solar light in winter, while during the afternoon all citizens and economic activities are fully operational, so that the overall energy balance would result in a lower consumption of electricity in case of prolonged winter daylight. Actually, DST was introduced for the first time to cope with the energy crisis triggered by the two World Wars, and reinforced during the oil shortage of 1970s. In these months, the EU and Italian Government are planning such restrictive measures as reducing heating temperature and turning on just one home appliance at time, so that any helpful measure should be considered.

Official data provided by the Italian Energy Agency (TERNA) reported that 420 million kilowatt-hours of

electricity were saved in the last seven months thanks to DST, corresponding to 190 million euros (before gas prices peaks).<sup>4</sup> In the last fifteen years, the lower DST-related electricity consumption was computed at 10 billion kilowatt-hours, for a total of 1.8 billion euros saved.<sup>3</sup> Maintaining DST for all the year in Italy would generate at least 500 million Euros of annual energy savings (at current gas prices), and a cut of climate-alternating emissions estimated in 200,000 tons of CO<sub>2</sub> every year.<sup>2,4</sup> This benefit corresponds to 6 million of newly-planted trees per year (considering that each tree absorbs 10-30 kg of CO<sub>2</sub>/year), with positive consequences on human health.<sup>2</sup> Additional health benefits are expected from the reduction in particulate matter produced by heating systems and vehicles, more frequently used when it gets dark. In this way, Italy could partially balance the delayed exit from coal and the re-activation of its biggest coal-fired power plants due to gas scarcity. Moreover, people would not experience discomfort due to the double switch from solar time to DST (i.e. loosing hours of sleep, re-assessing their circadian rhythm etc.), which was deemed as very negative by 84% of citizens in the public consultation preceding EU Parliament vote. At the same time, no conclusive data about DST-related negative effects on health (if any) are available, especially in countries with unique time zone.

In 2018 The European Parliament delegated to each EU Member State the choice whether to permanently adopt summer or winter time, while the United States of America are preparing for a permanent adoption of DST. On March 15<sup>th</sup>, the U.S. Senate approved the "Sunshine Protection Act" (still needing U.S. Congress and President Biden ratification), which states the transition to permanent DST time starting from November 2023. Positive data were published in the U.S. following the temporary 4-week extension of DST in 2007, aimed at saving energy costs. Direct comparisons with previous years found that the 4-week DST extension in the

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U.S. resulted in an average 7% reduction in robberies compared to FBI 2005-2008 data, with peaks of -27%. These results were mainly attributed to the one-hour postponement of winter twilight, which corresponds to the time when people usually leave their workplace/schools (4-5 pm), being more exposed to crimes facilitated by the dark.<sup>5</sup> Avoided social costs attributable to reduced incidence of robberies were estimated up to 59 million dollars only for year 2007, with additional savings of 240 million dollars due to the lower frequency of rapes. The energy savings that initially triggered the U.S. temporary initiative should be added on the top of these avoided social costs, that - in case of permanent DST adoption - could be 20 times greater than those observed for the 4-weeks extension of 2007.<sup>5</sup> The new Italian Government as well as other EU countries should possibly consider DST extension within the measures to be adopted to save energy costs.

### Contributors

All authors have equally contributed to conceptualisation, data curation, validation, writing the original manuscript, reviewing and editing.

### Declaration of interests

All authors declare no conflict of interests.

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