



# Discontinuing seasonal changes of time - impacts on energy savings and energy markets: evidence from previous research

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# Introduction

- In 2014 ICF, a consultancy, carried out a study for the European Commission that examined the implications for the internal market, business and citizens of the application of summertime no longer being synchronised
- These remarks are based on the research conducted for that study plus a review of a number of research papers published in the subsequent period
- Its focus is on the energy sector
- We also offer remarks on the lead time needed for any change from current arrangements

# There is a historic link between adoption of seasonal time changes and energy policy

- William Willetts' 1907 pamphlet proposing a seasonal time change estimated the savings in lighting costs that the UK would experience
- The need to achieve to energy savings prompted the adoption of seasonal time changes in Europe on more than one occasion over past century
  - During the first World War
  - In the 1970s energy crisis
- The last amendment to United States law on daylight savings time, in 2005, used the Energy Policy Act

# Some contemporary studies that have found that summertime provides energy savings in specific contexts....

- In 2013 an Italian grid operator estimated savings to Italian consumers from summertime of €90m, the energy being equivalent to consumption of 180,000 households
- Looking at Sweden and southern Norway, Mirza and Bergland (2011) estimated annual financial savings of €30m and €16m respectively
- Bergland and Faisal (2017) estimated summertime's effects on energy consumption in 35 European countries and found savings ranging between less than 0.5% to more than 2.5%, depending on the country

# ....but all recent strategic appraisals of the issue have concluded that the evidence of energy savings is ambiguous or that the effects are, at best, small

- A 2007 Commission study concluded the energy saving impact was small
- A literature review by Aries and Newsham (2008) found that the evidence on energy savings was mixed and inconclusive
- A 2016 study from the German Bundestag's Office of Technology Assessment found that impacts could be marginally positive or negative, depending on context
- A meta-analysis published in 2017 (Havranek *et al*) considered 162 estimates from 44 studies from around the world and found a mean reported electricity saving of 0.34%

# ICF consulted certain stakeholders on the effects of summertime on energy consumption

- Member State Governments
  - Thirteen of the governments responding to the survey suggested that summertime arrangements result in a small decrease in energy consumption but were not generally able to quantify it
  - Some suggested that there could be off-setting increases in energy use beyond lighting (e.g. increased demand for air conditioning)
- Energy sector stakeholders
  - Some energy consultees suggested summertime had limited impact on the sector
  - One noted that summertime creates issues for gas suppliers that book pipeline flow and storage for the gas with the Transmission System Operators – one day is 23 hours and another 25 hours.

# Technology change is reducing lighting-related energy use, and so reducing the potential savings associated with seasonal time changes

- The shift to LED and other energy-efficient technologies reduces lighting-related energy demand and so reduces the lighting-related energy savings of summertime
- Increases in demand for heating or air-conditioning may offset savings in lighting
- The actual change in energy demand would also be influenced by whether Member States settled on permanent summertime or permanent wintertime

# Asynchronous changes in summertime within the EU could create challenges for some organisations in the energy sector

- An electric utility company consulted for the ICF study explained that if summertime arrangements were not harmonised there could be issues with asynchronised electricity consumption curves which could cause some problems in managing electricity flows between highly connected systems
- No evidence of this effect being observed was located
- The wider conclusion from the ICF study was that synchronisation of time changes within the EU was convenient, avoiding confusion and adjustment costs.

# Adequate advance notice of any change to current arrangements would help to reduce transition costs

- **Certain stakeholders would need time to adjust and plan for the end of summertime:**
  - There are sectors where service timetables need to accommodate daylight savings time
    - Timetabling is often done many months in advance
    - Effects may reach beyond the EU (e.g. for international transport services)
  - ICT systems and technologies that are pre-programmed for seasonal time changes would need adjustment to accommodate the abolition of the current schedule
    - Software upgrades would take time to specify, test and deploy
    - For some technologies users may need to change settings on their devices
- **To our knowledge this issue has not been explored in depth so there is uncertainty about costs and implications**

