

Energiewende in Dänemark

Per Heiselberg

Professor

Aalborg University, Denmark



Berlin, 28./29. Januar 2021

A satellite night view of Europe, showing the continent illuminated by city lights against the dark background of the night sky. The lights are concentrated in urban areas, creating a glowing pattern across the landmasses.

Energiewende in Dänemark

The Green Energy Transition in Denmark

Per Heiselberg
Department of the Built Environment



AALBORG UNIVERSITY
DENMARK

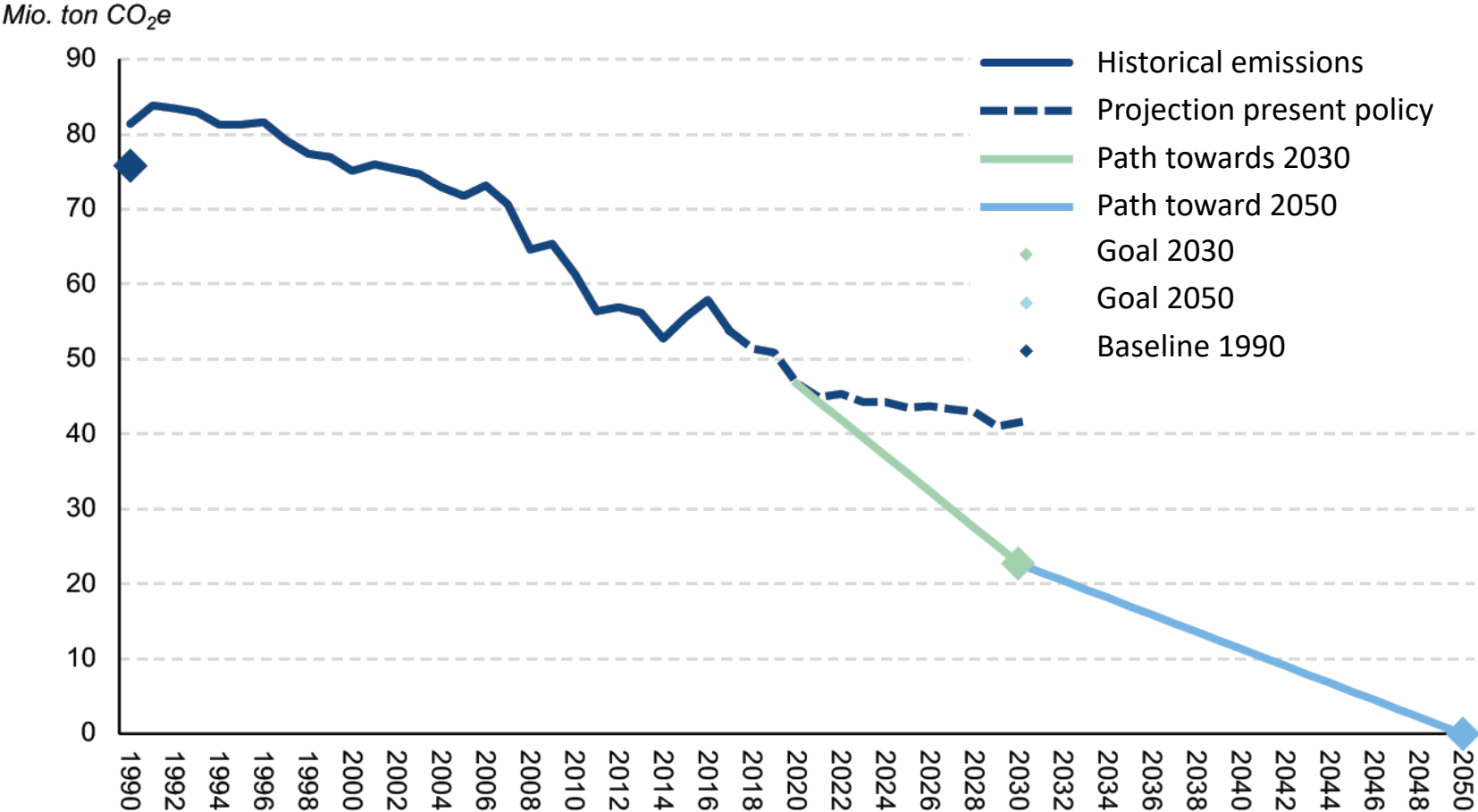
The Challenge



Paris agreement

COP21 closed on 12 2015 with the adoption of the first international climate agreement (concluded by 195 countries and applicable to all). The twelve-page text, made up of a preamble and 29 articles, provides for a limitation of the temperature rise to below 2°C and even to tend towards 1.5°C. It is flexible and takes into account the needs and capacities of each country. It is balanced as regards adaptation and mitigation, and durable, with a periodical ratcheting-up of ambitions.

Danish Greenhouse Gas Emissions

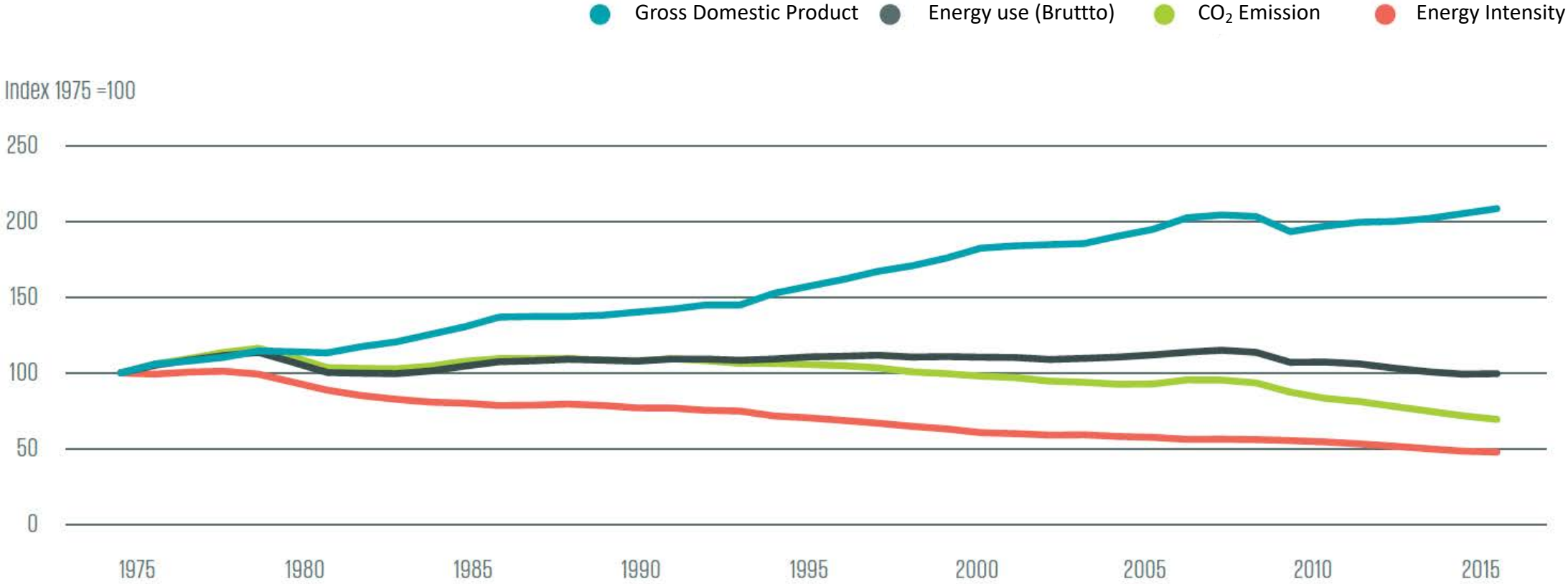


Reference: Danish Energy Agency,
Basisfremskrivning 2019

The History



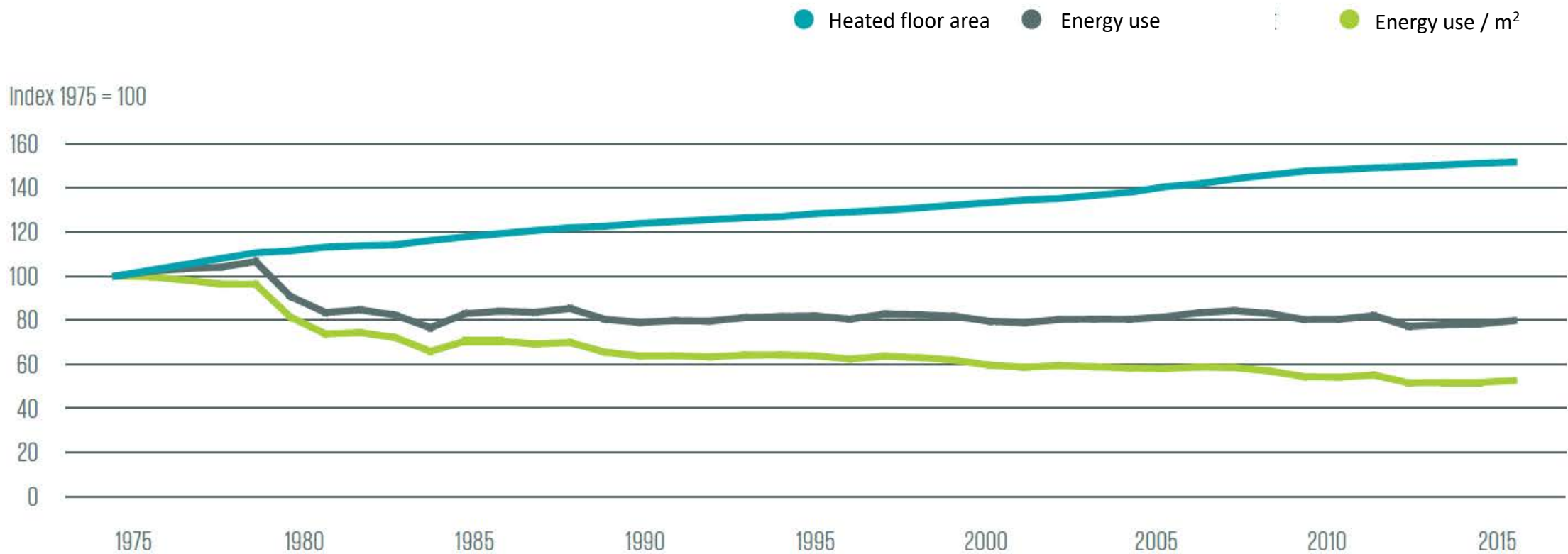
Development in Gross Domestic Product and Energy Use



Reference: Danish Energy Agency,
Energy Statistics, National Accounts



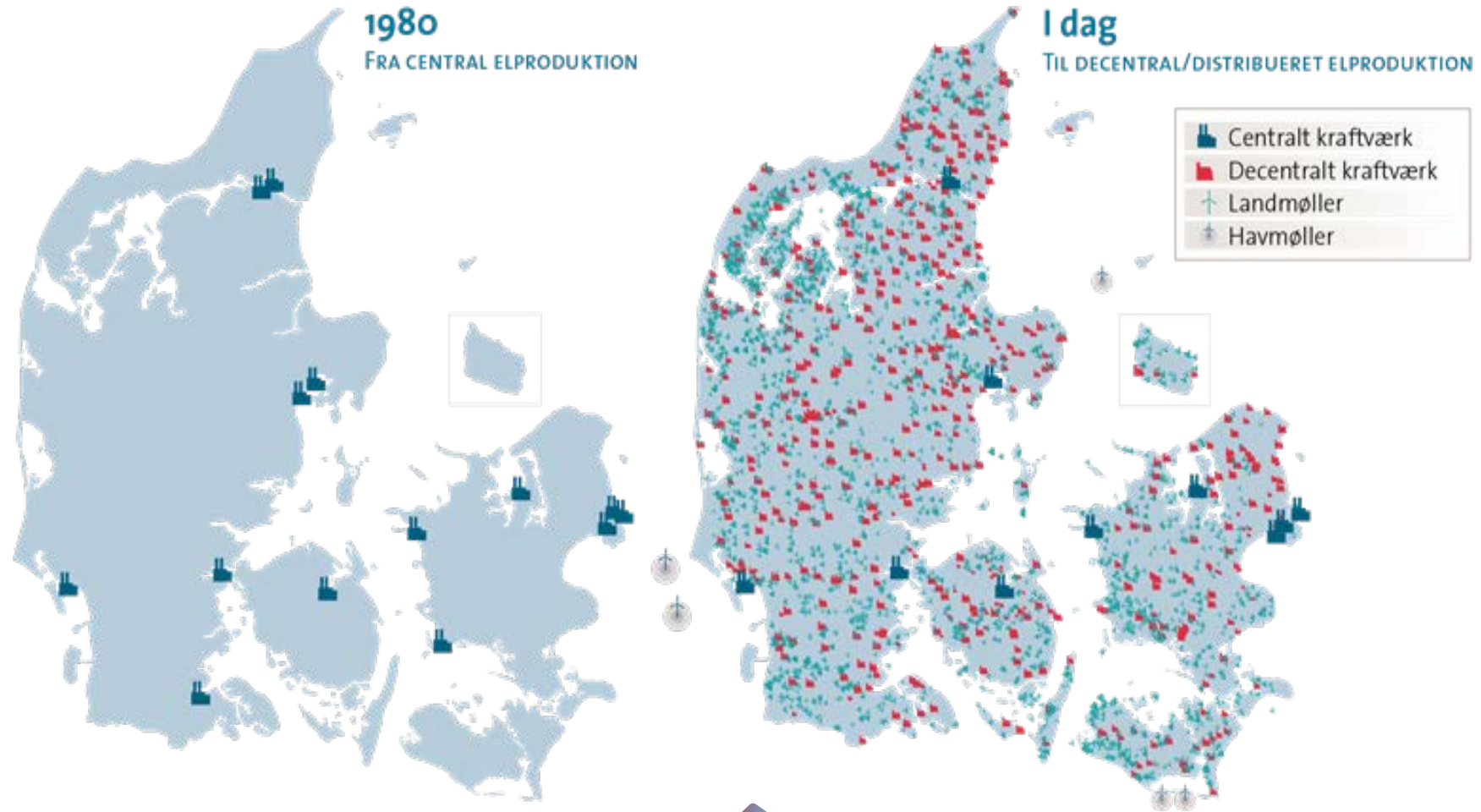
Development in Energy Use for Residential Heating



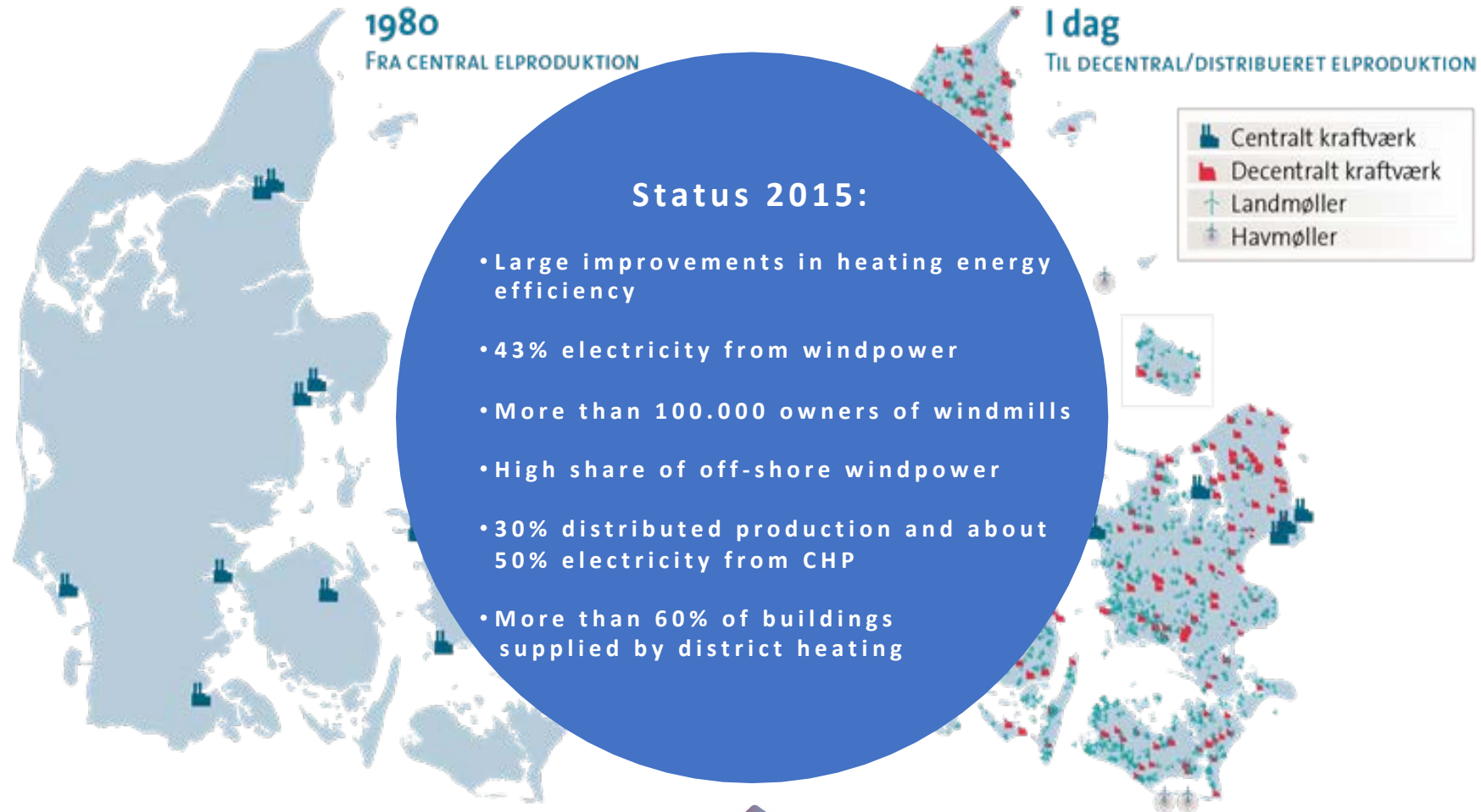
Reference: Danish Energy Agency,
Energy Statistics, National Accounts



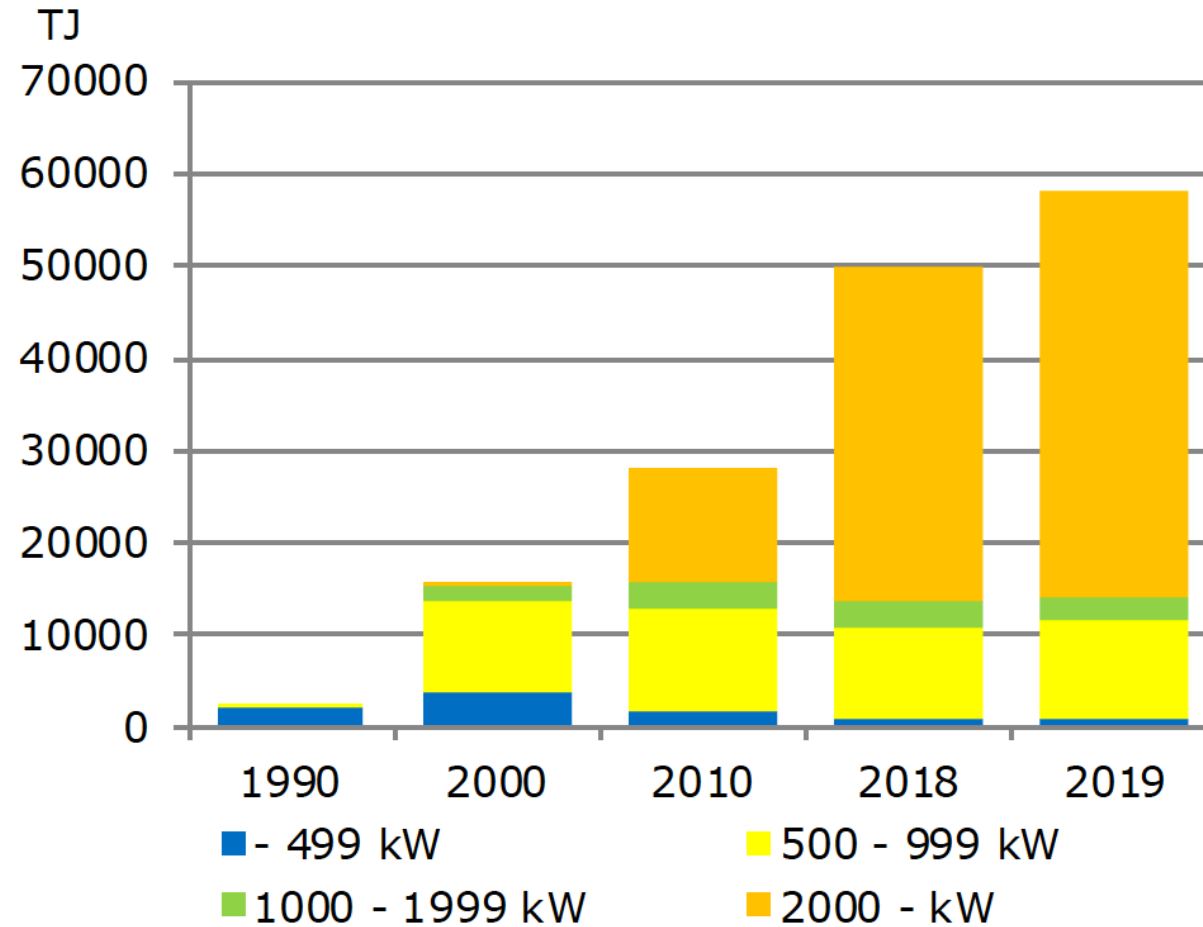
Energy System Change in Denmark



Energy System Change in Denmark

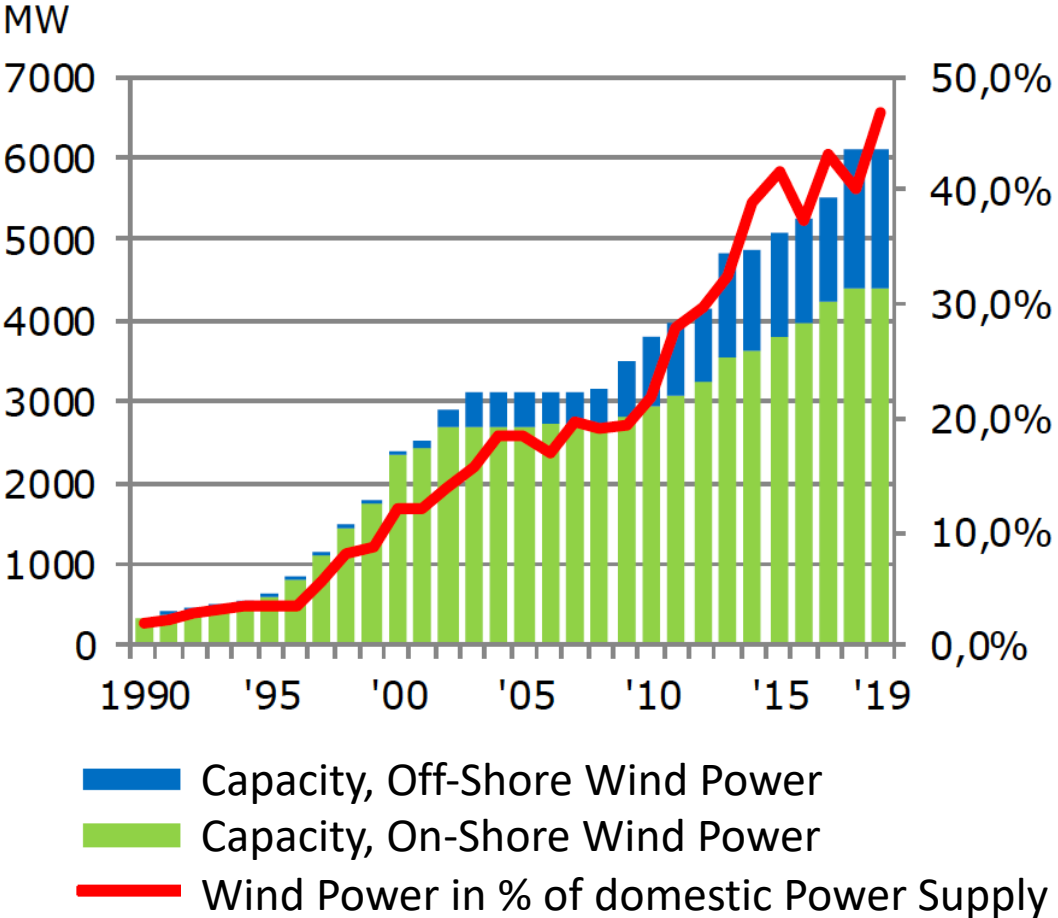
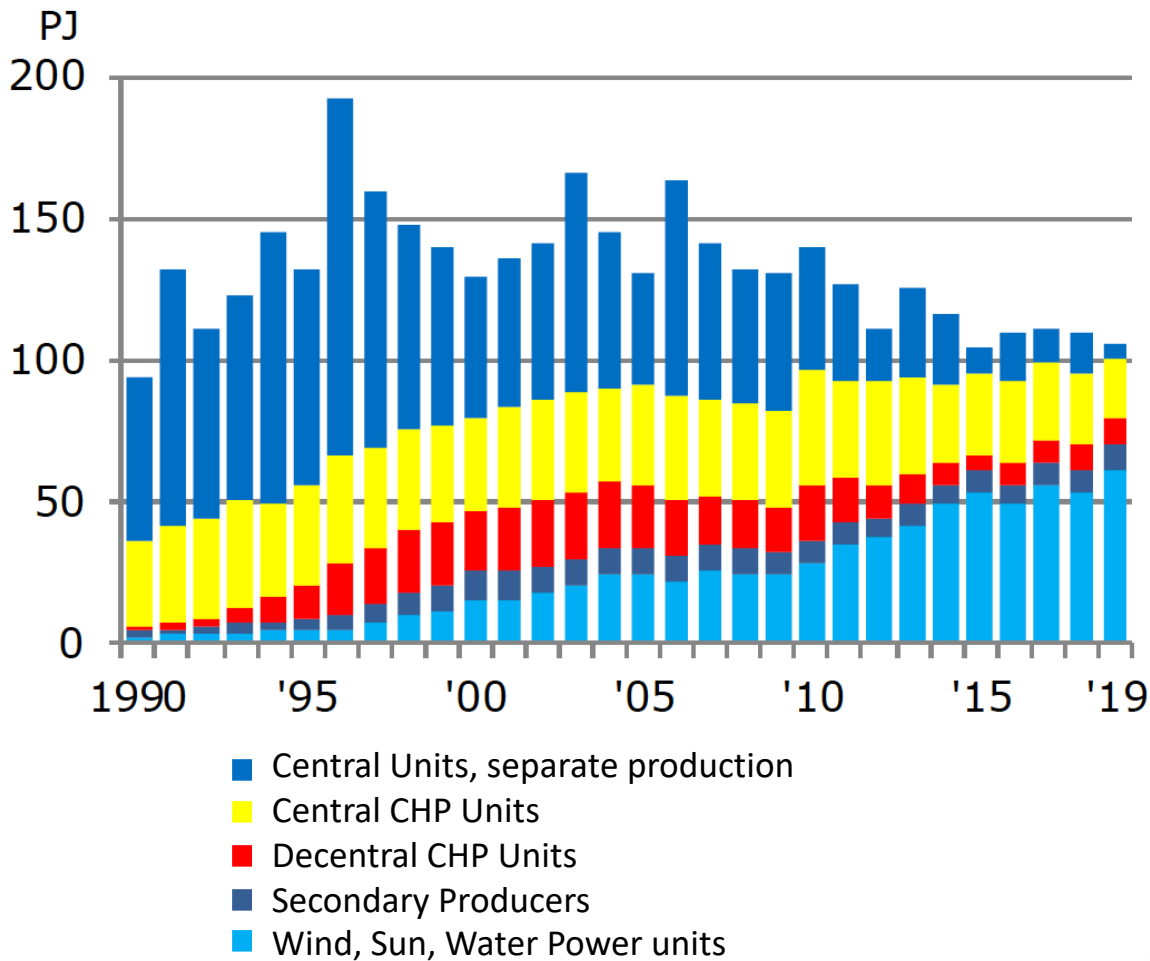


Wind Power Production Depending on System Size



Reference: Danish Energy Agency,
Energy Statistics 2019

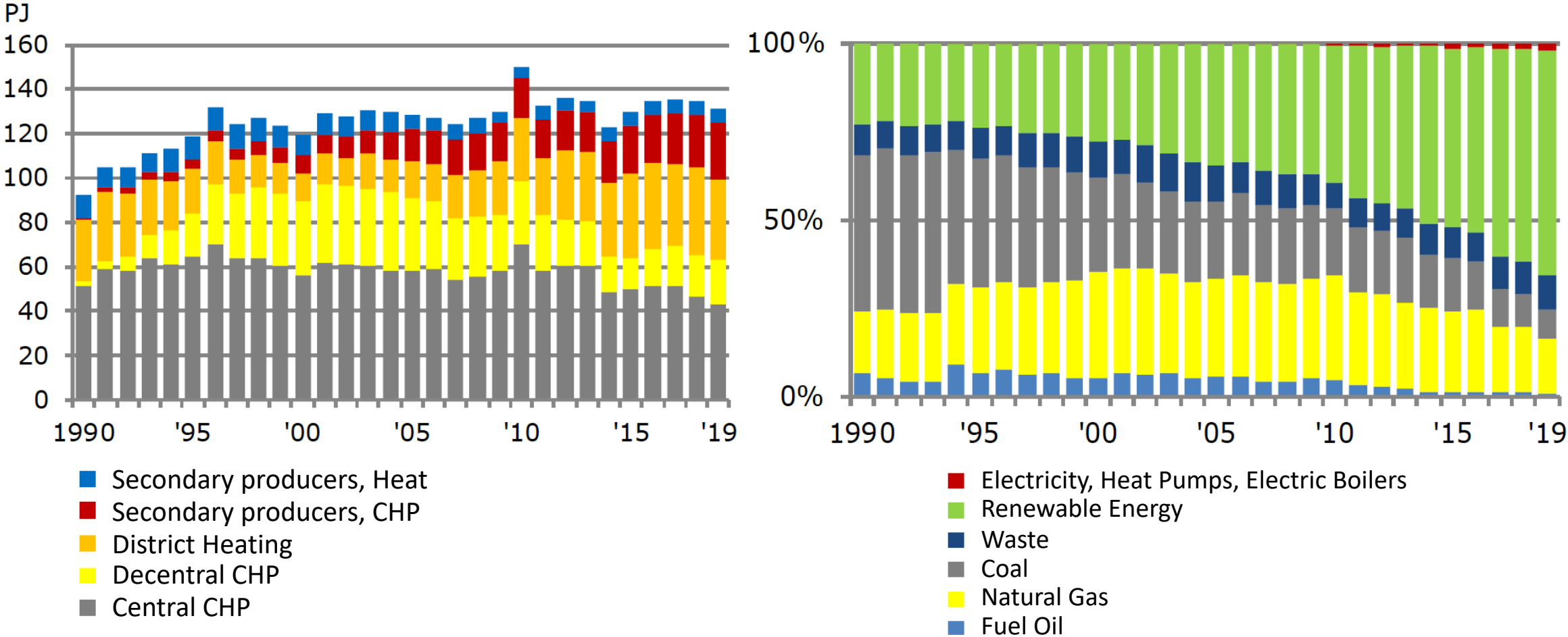
Development in Electricity Production and Wind Power Share



Reference: Danish Energy Agency,
Energy Statistics 2019



District Heating Production and Fuel Use



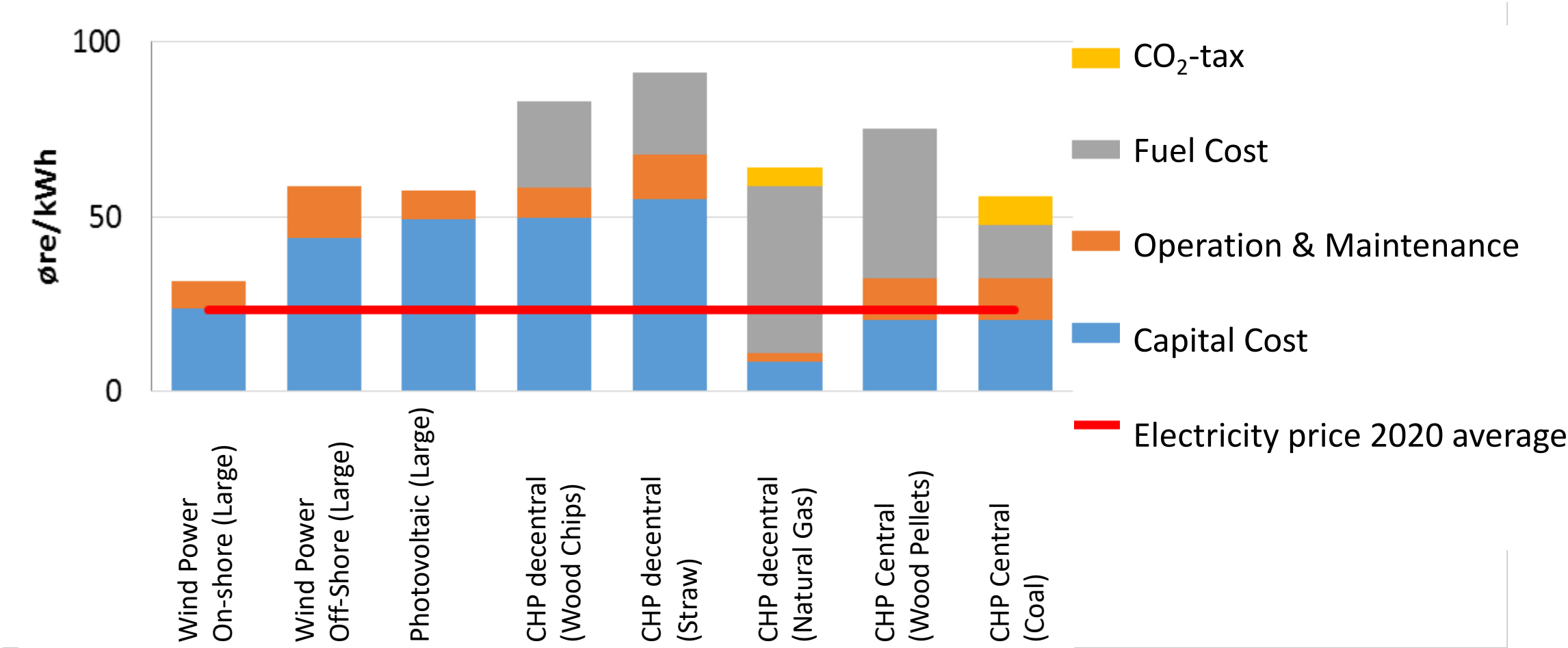
Reference: Danish Energy Agency,
Energy Statistics 2019



The Next Decade



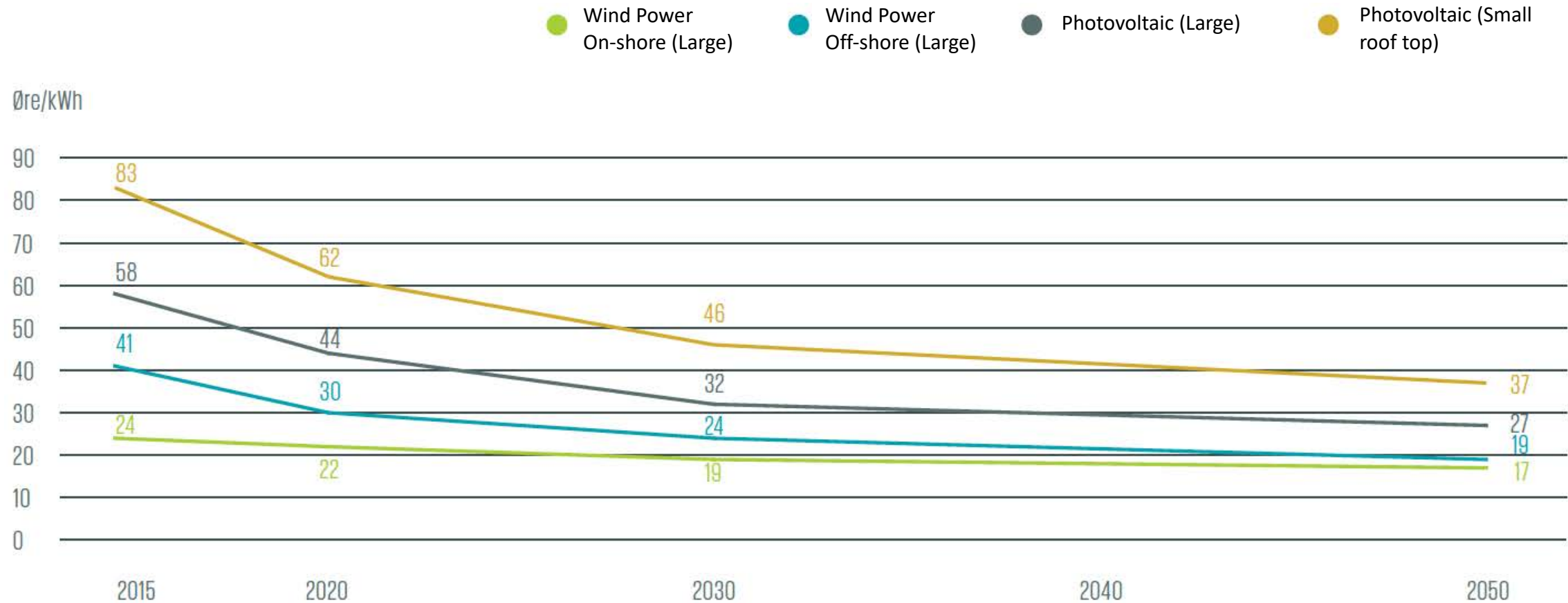
Electricity Production cost



Reference: Danish Energy Commission 2017



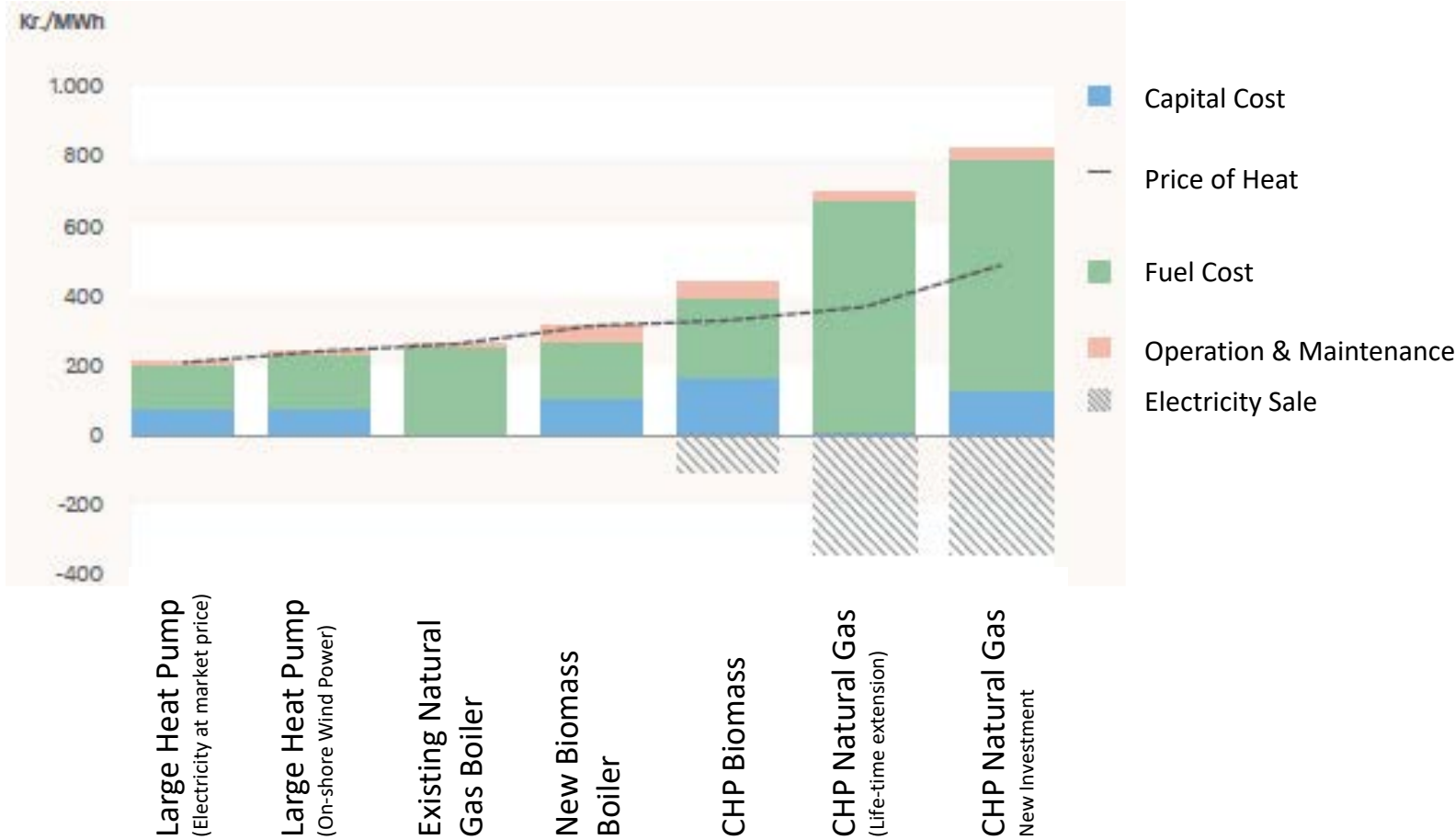
Expected Development in Renewable Energy Production Cost



Reference: Danish Energy Commission 2017



District Heating Production Cost



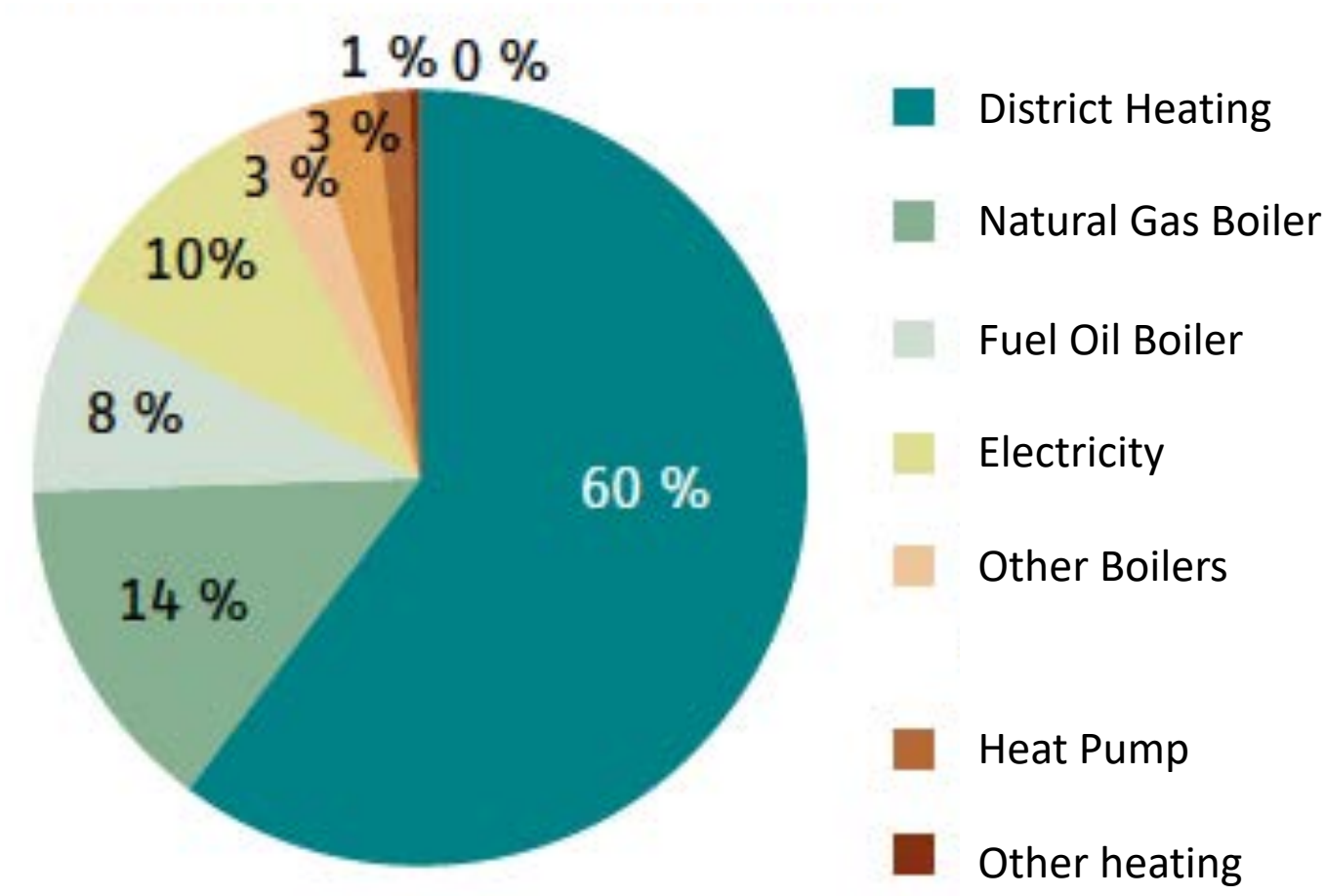
Reference: Danish Council
on Climate Change 2015



The Role of Buildings



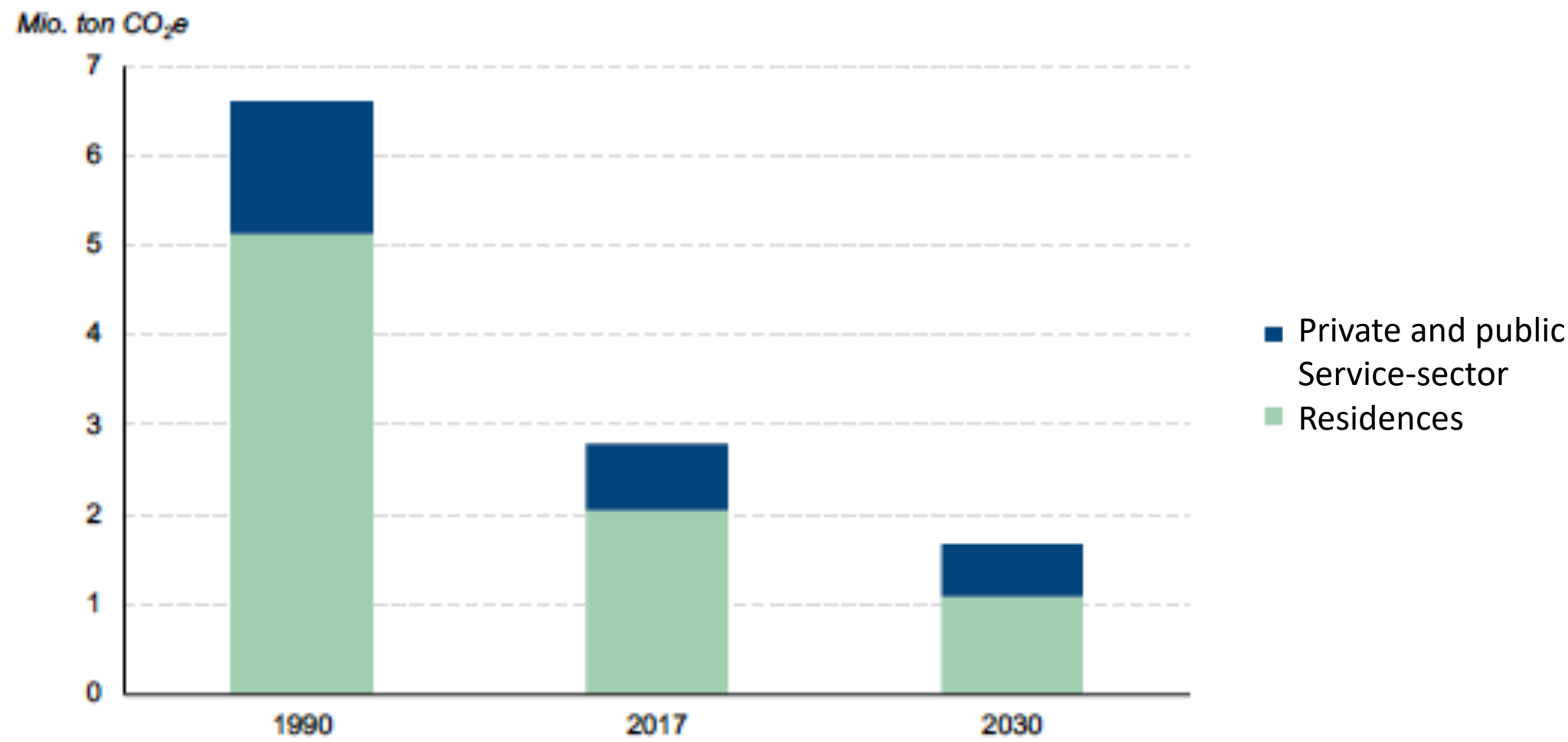
Residential Heat Supply



Reference: Byggeriets Energianalyse 2019,
Dansk Byggeri
Referent, 19



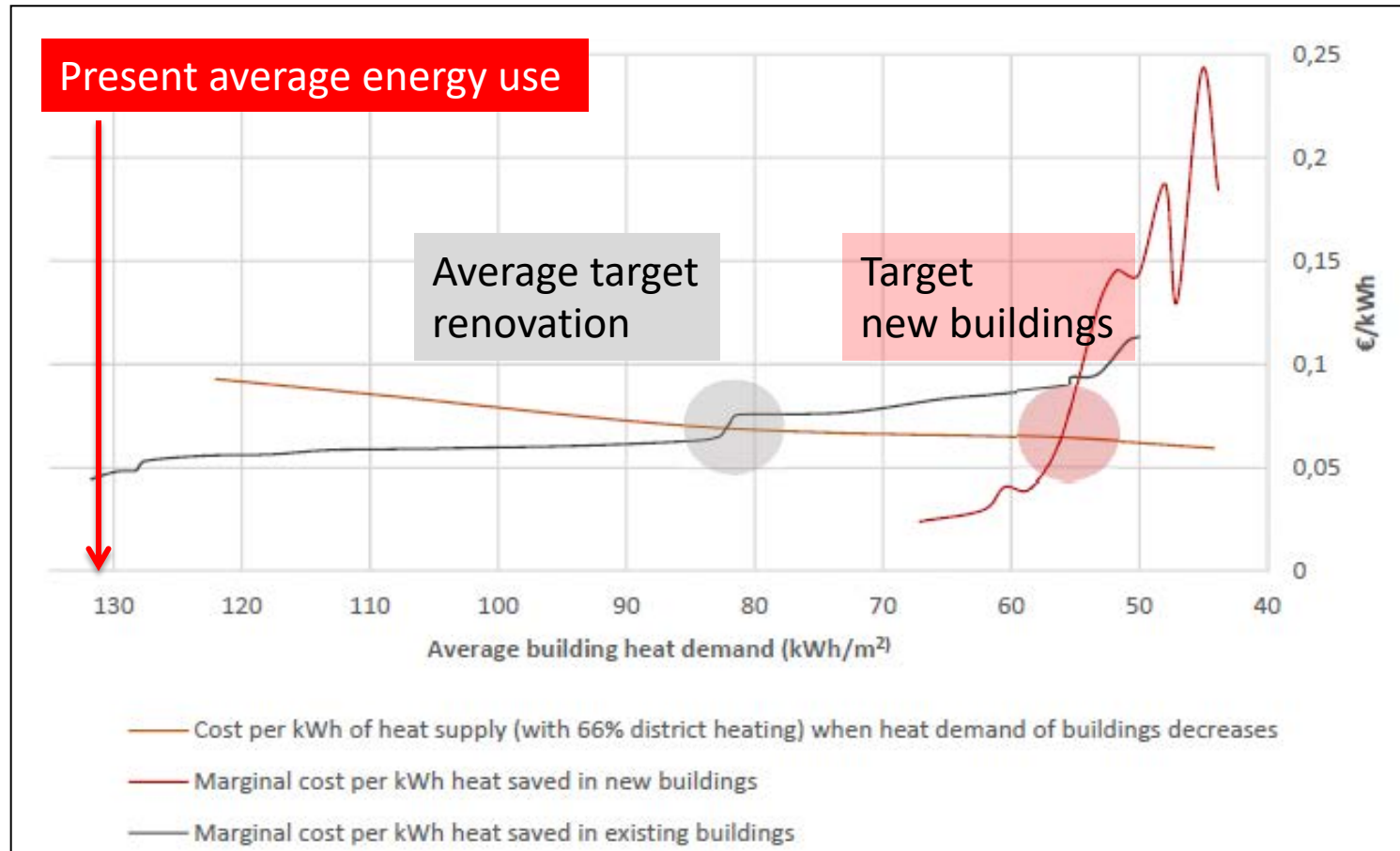
Historical and Projected Greenhouse Gas Emission from Buildings



Reference: Danish Energy Agency
Baseline Projection 2019

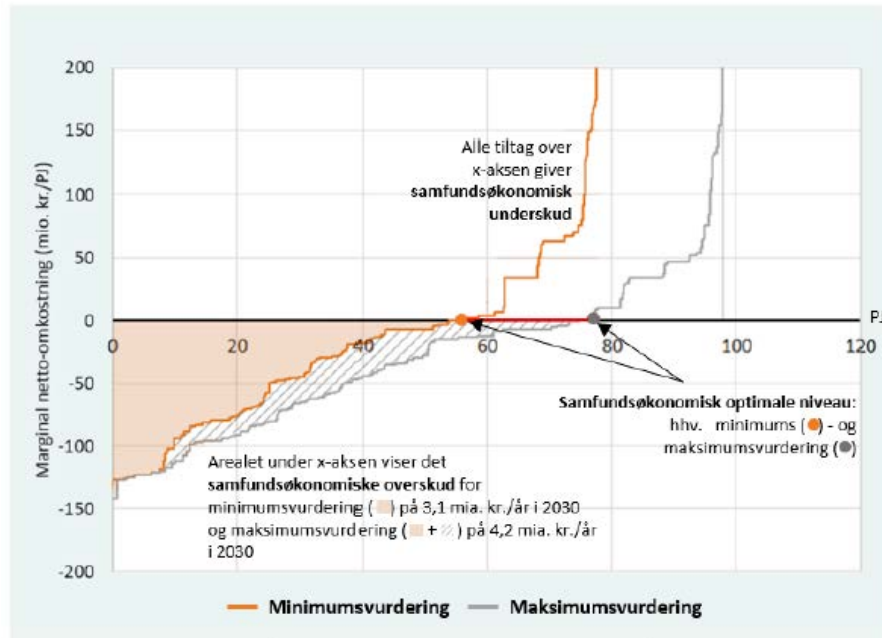


Optimum heat Energy Savings in the building sector towards 2050

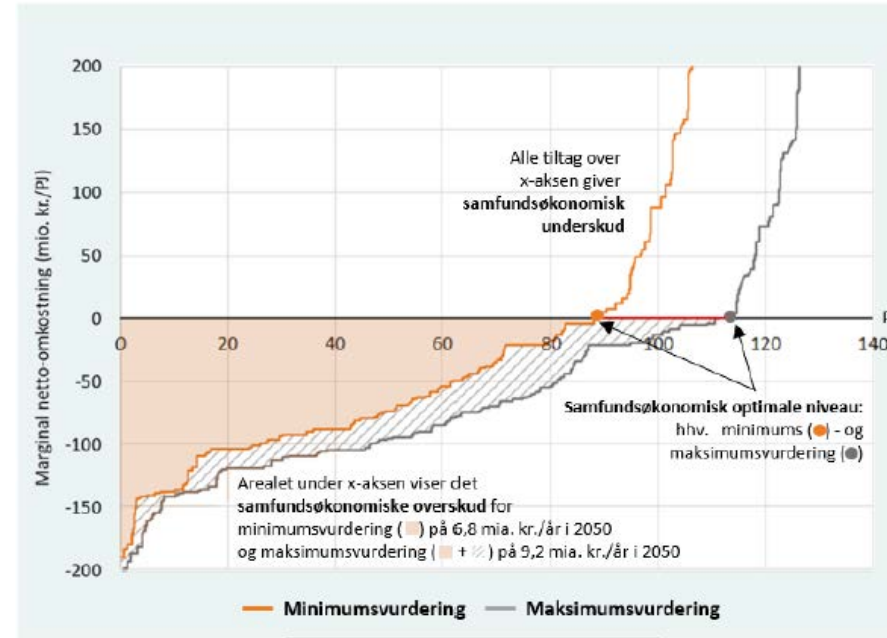


MAC-curves for energysavings in building in 2030 og 2050.

MAC-kurve 2030

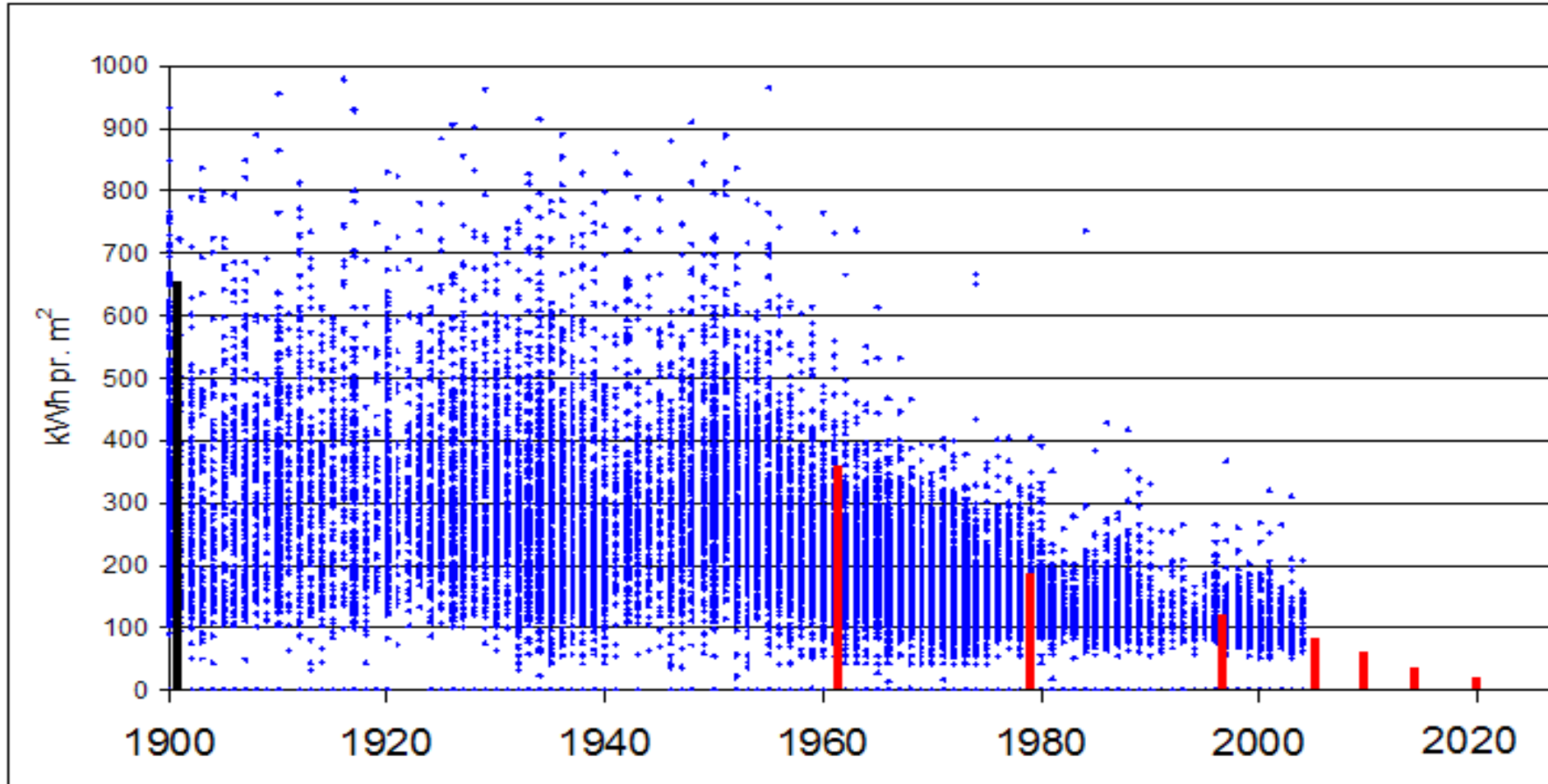


MAC-kurve 2050

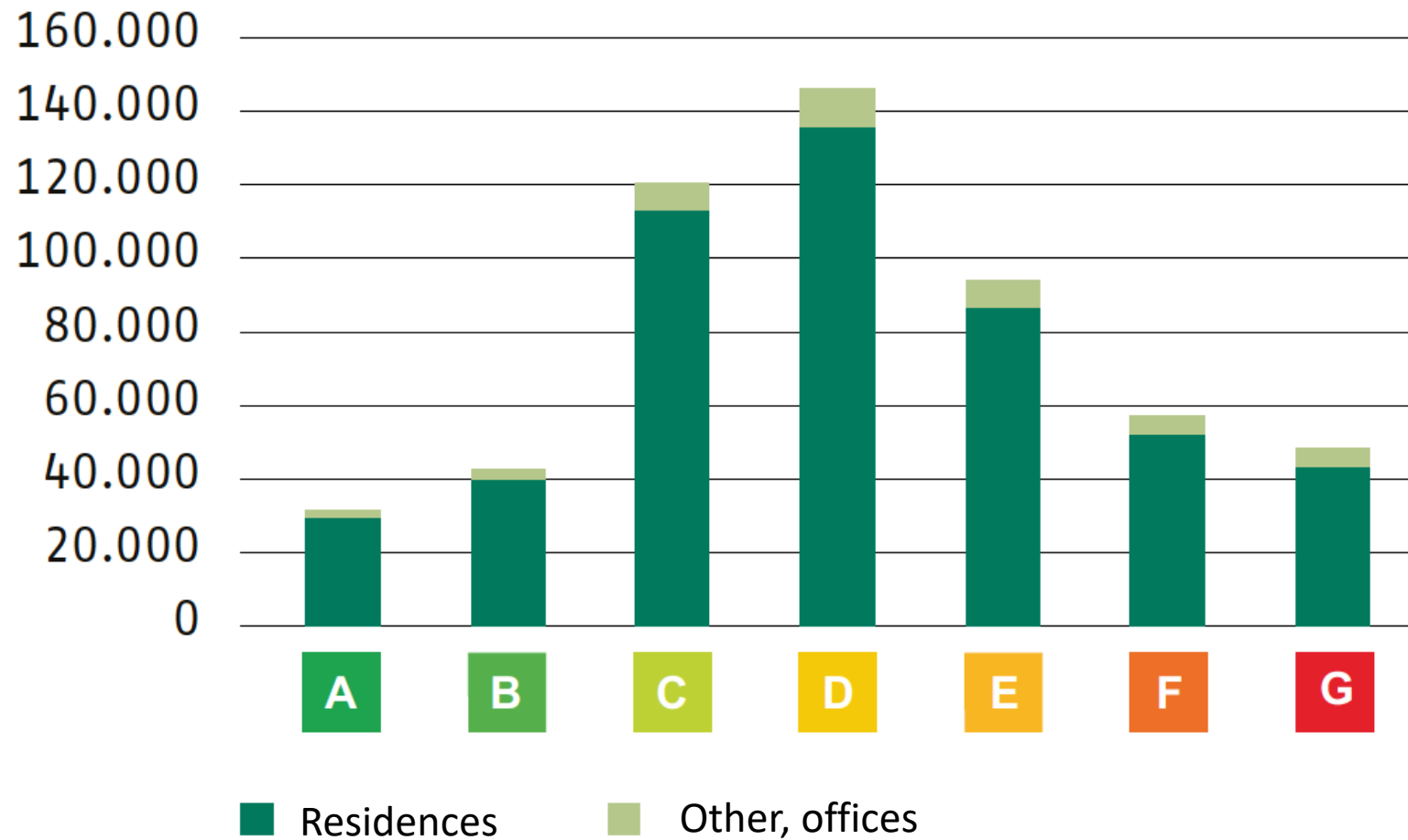


The total socio-economic energy saving potential in buildings will in 2030 be a reduction of 15-21% compared to 2017 and in 2050 a reduction of 25-31%.

Energy Use in Danish Single Family Houses – By year of construction



Distribution of Energy certificates - 2016



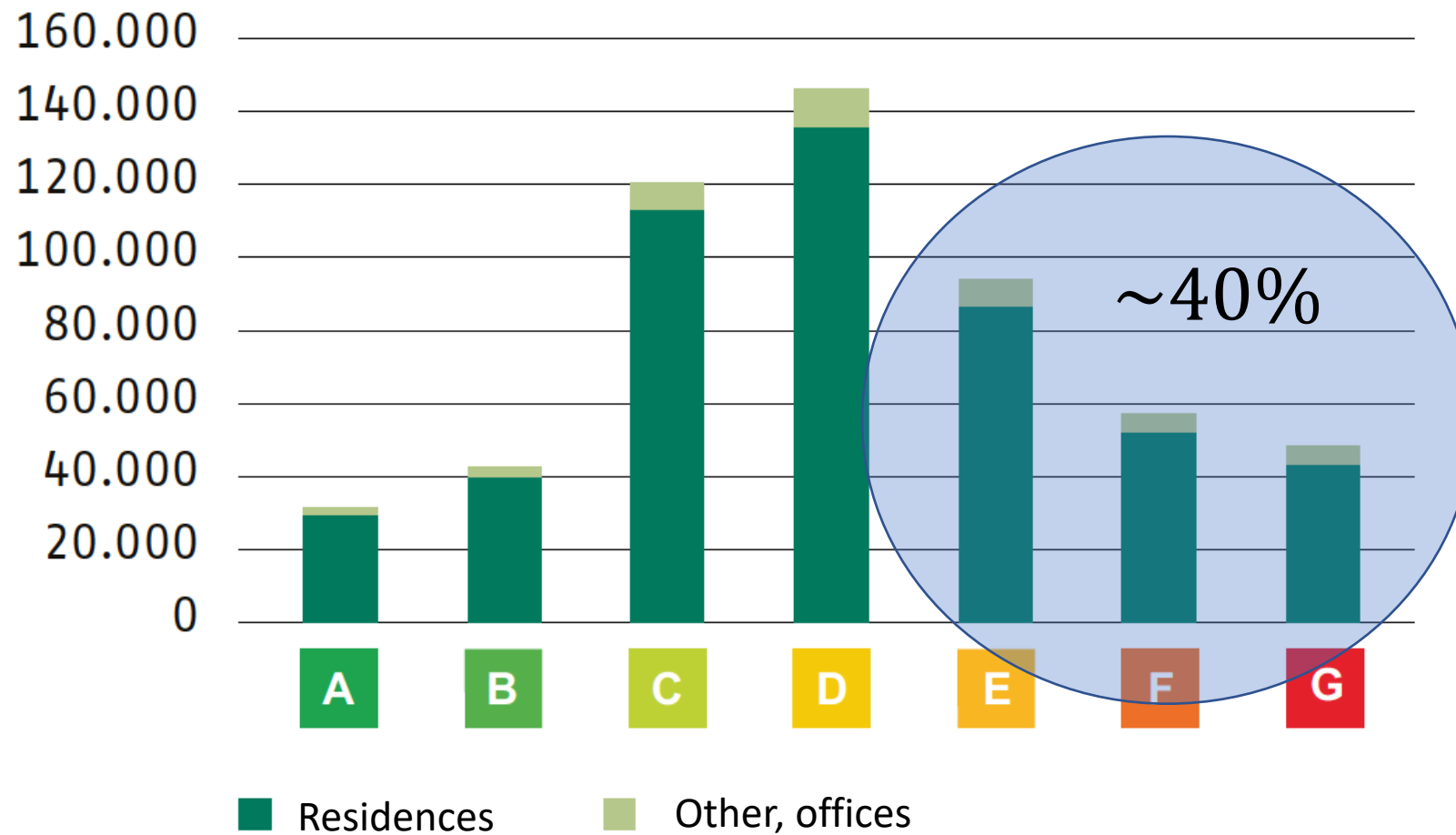
Reference: Byggeriets Energianalyse 2017,
Dansk Byggeri

Referent, 24



01.02.21

Distribution of Energy certificates - 2016



Reference: Byggeriets Energianalyse 2017,
Dansk Byggeri

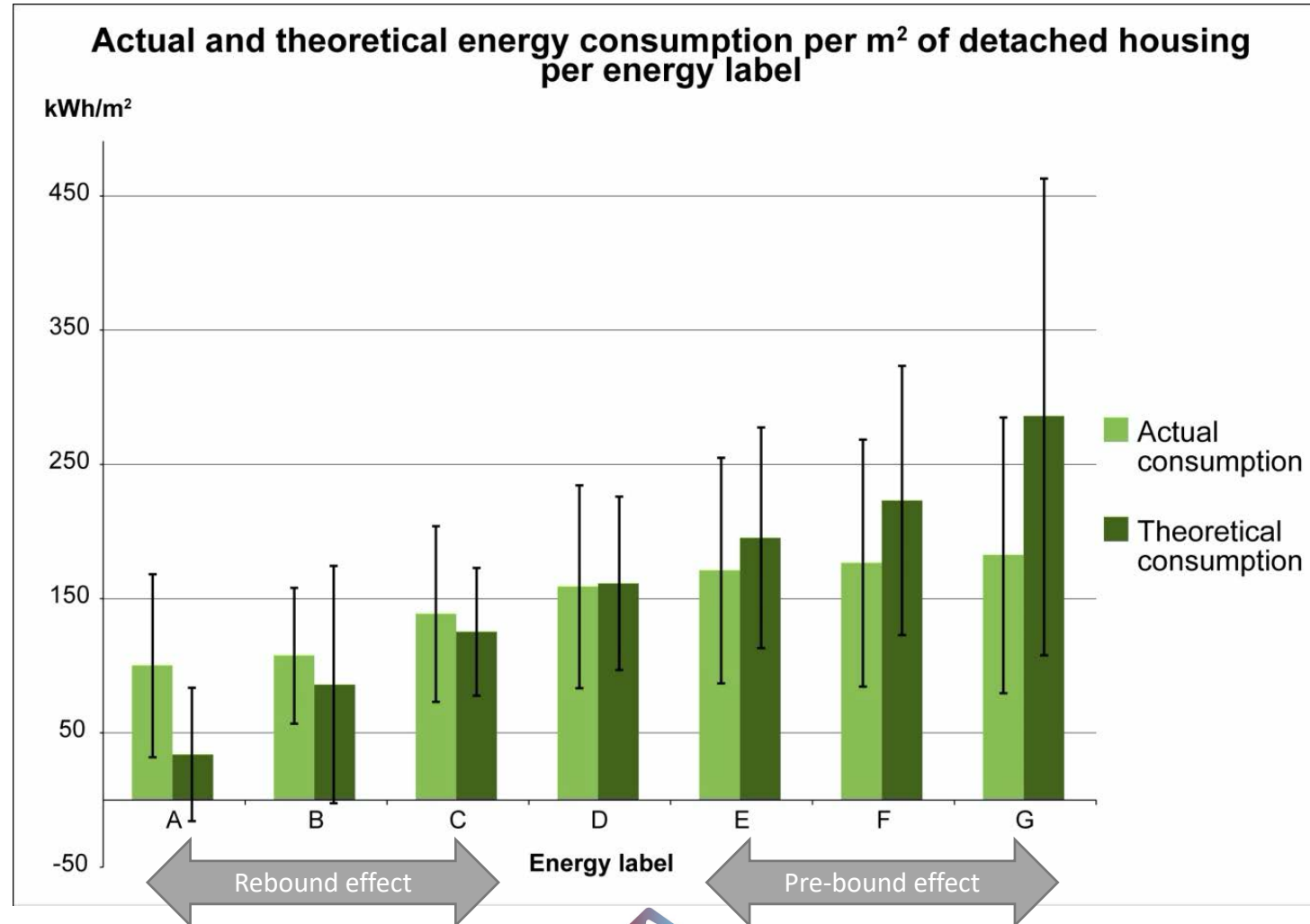
Referent, 25



01.02.21

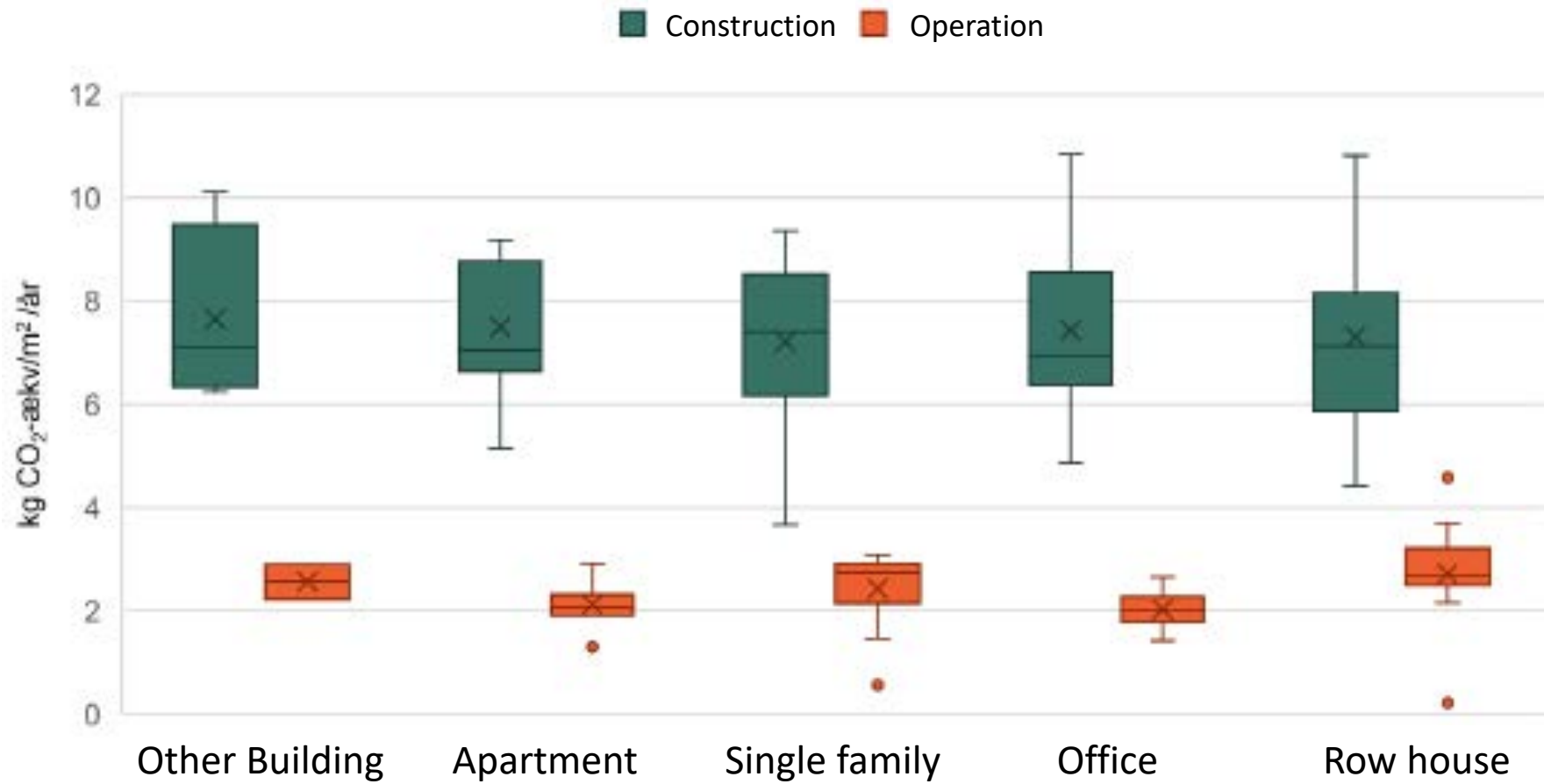
Efficient homes versus efficient practices....

Based on 230.200 detached Danish houses with an energy label.



Reference:
(Gram-Hansen and Hansen, 2016)

Environmental Impact from construction and operation for a 50 year period



60 cases constructed from 2013 til 2021.

- 34 residences,
- 22 offices
- 4 school, hospital, other

Reference: BUILD Report 2020:04



Per Heiselberg
Aalborg University
E-mail: pkh@build.aau.dk
www.build.aau.dk

An aerial night photograph of Europe, showing the continent illuminated by city lights. The lights are concentrated in major urban centers and along coastlines, creating a glowing pattern against the dark land and sea. The North Atlantic Ocean is visible to the west, and the Mediterranean Sea to the south. The text "Thank you for your attention" is overlaid in white, sans-serif font in the center of the image.

Thank you for your attention



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