

13h45 – 14h00

Welcome & Introduction

by [Dr. Henk Huinink](#) - TU/e | EIRES | APSE

14h00 – 14h35

Using salt mixtures / double salts in thermochemical storage

by [Prof. Michael Steiger](#) – Hamburg University

14h35 – 15h10

Synthetic approaches to enhance materials for thermochemical energy storage

by [Prof. Candida Milone](#) – University of Messina

15h10 – 15h30

Break, coffee & tea

15h30 – 16h10

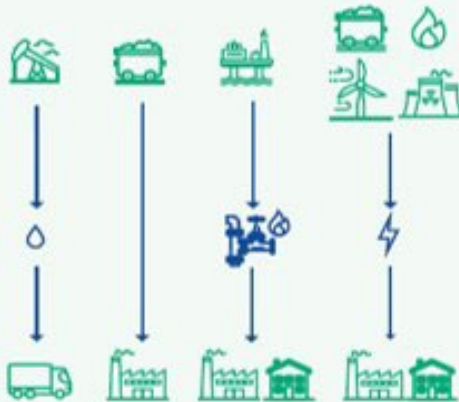
Thermochemical energy storage in energy storage mixed systems

by [Prof. Yukitaka Kato](#) – Tokyo Institute of Technology

**16h15
Drinks**

EIRES

The energy system today : linear and wasteful flows of energy, in one direction only

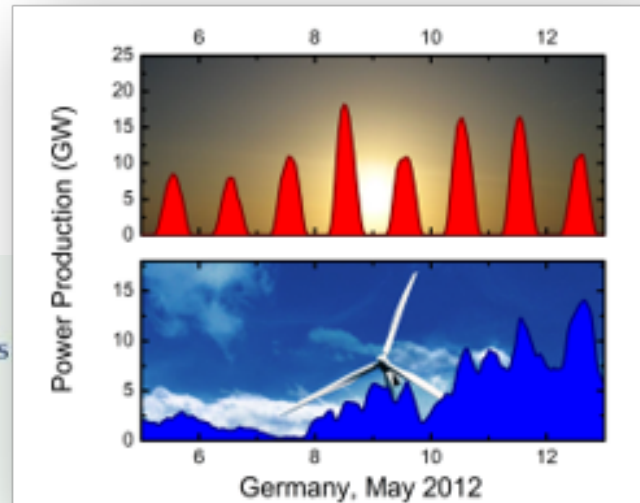


Future EU integrated energy system : energy flows between users and producers, reducing wasted resources and money



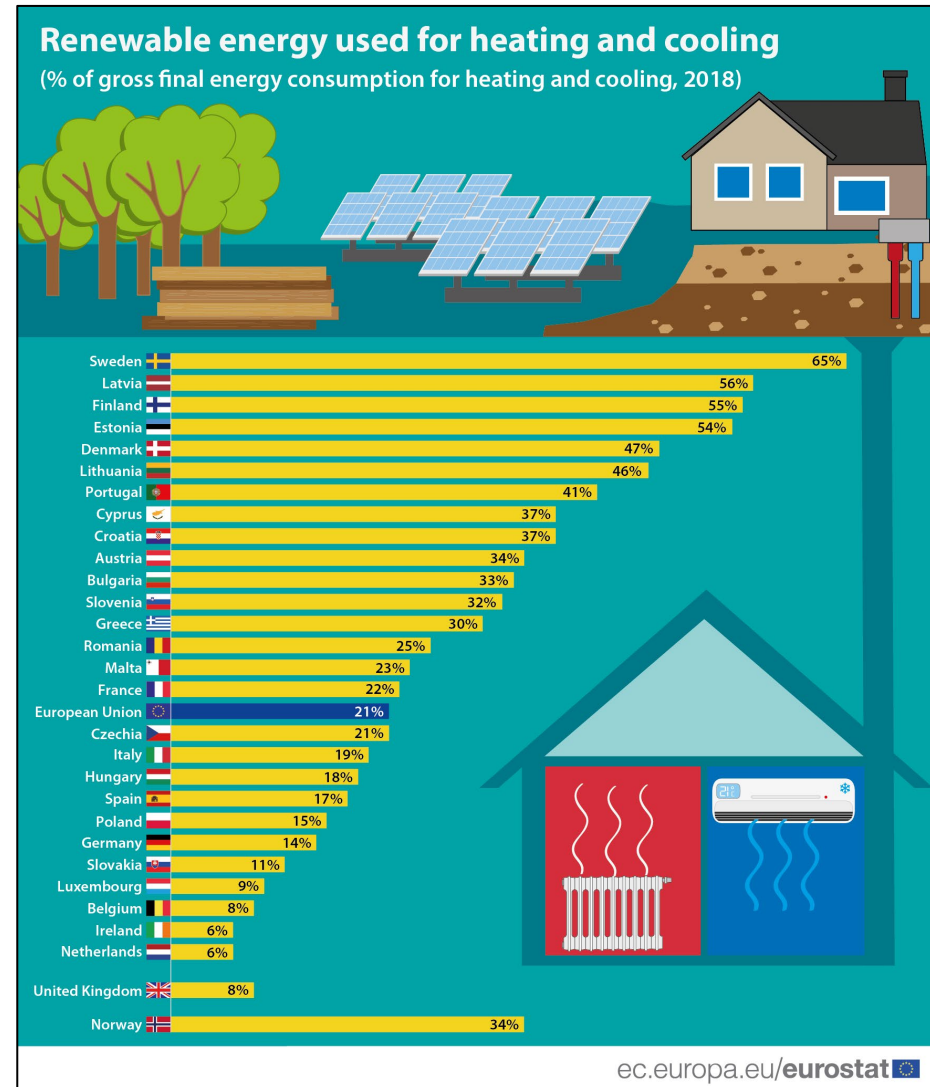
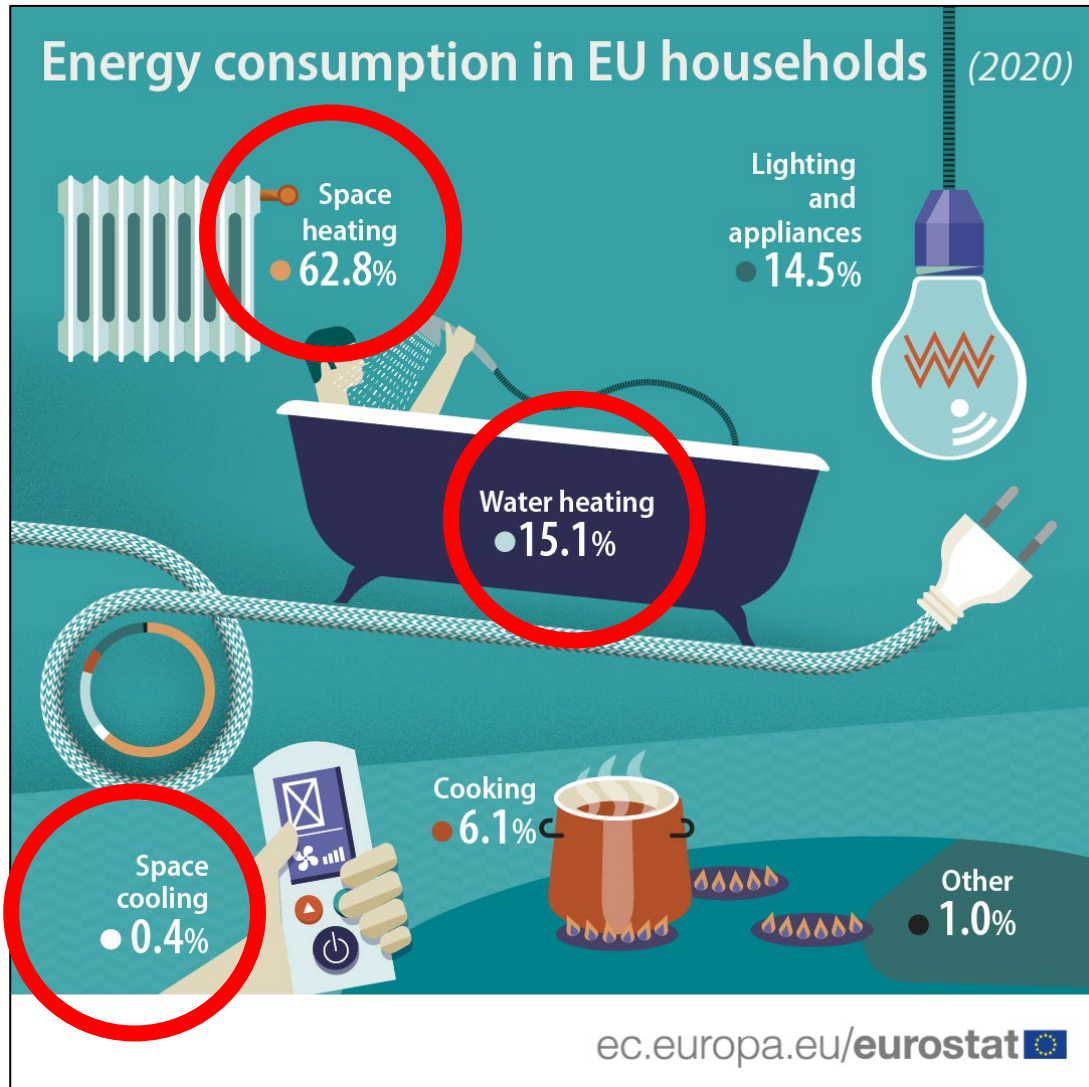
An Integrated EU Energy System will have **three main characteristics:**

- A more **efficient and "circular" system**, where waste energy is captured and re-used
- A **cleaner power system**, with more direct electrification of end-use sectors such as industry, heating of buildings and transport.
- A **cleaner fuel system**, for hard-to-electrify sectors like heavy industry or transport



Transport, conversion and storage of energy is key

Thermal Energy 78.3%



Thermal Energy Storage



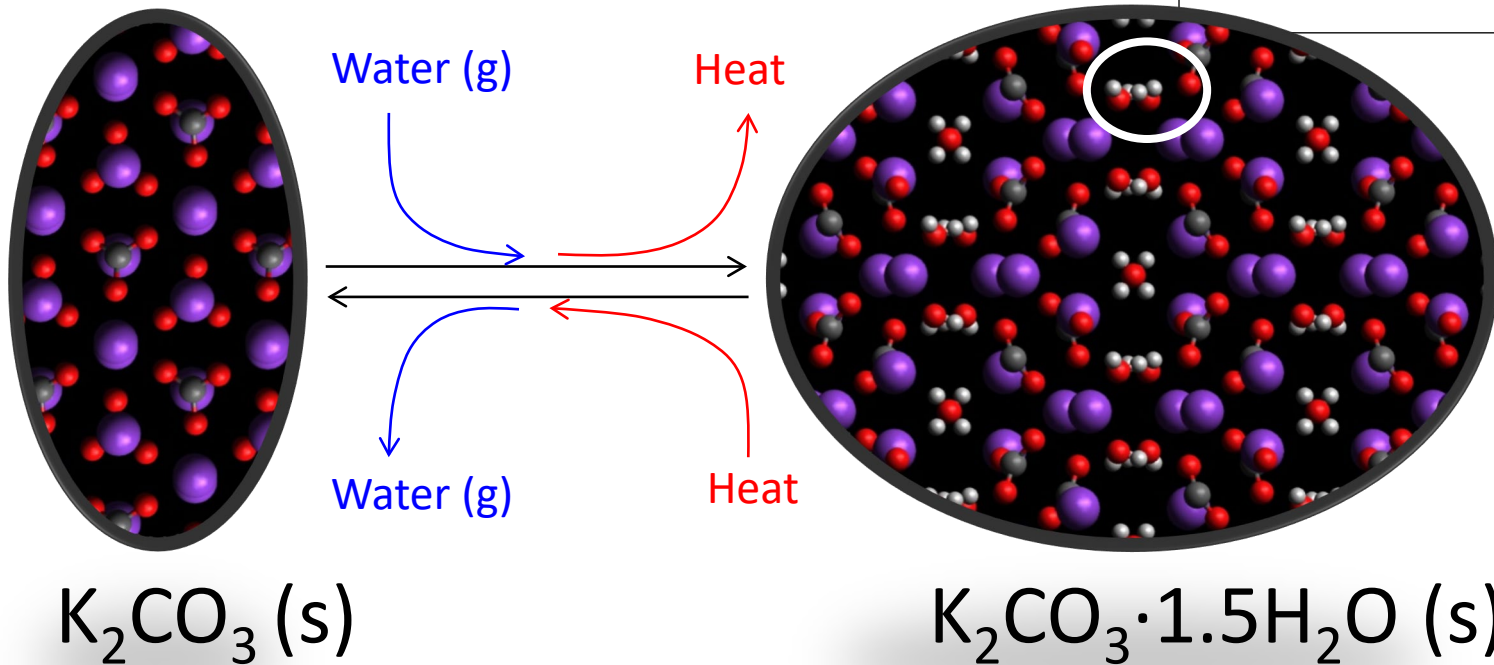
Sensible heat



PCM

Thermo-Chemical Energy Storage

Compounds	$AB(s) \rightleftharpoons A(s) + B(g)$	Temperature levels (°C)
Hydrates	$S \cdot bH_2O(s) \rightleftharpoons S \cdot aH_2O(s) + (b - a)H_2O(g)$	< 260
Ammoniates	$S \cdot bHN_3(s) \rightleftharpoons S \cdot aNH_3(s) + (b - a)NH_3(g)$	< 300
Hydroxides	$M(OH)_2(s) \rightleftharpoons MO(s) + H_2O(g)$	270 - 800
Carbonates	$MCO_3(s) \rightleftharpoons MO(s) + CO_2(g)$	900 - 1500
Oxides	$2MO_2(s) \rightleftharpoons M_2O_3(s) + \frac{1}{2}O_2(g)$	900 - 1500



Speakers

IONS



SPEAKER

**Prof. M. Steiger,
Hamburg University**

Prof. M. Steiger | Hamburg
University

Using salt mixtures / double salts in thermochemical storage

MATERIALS



SPEAKER

**Prof. C. Milone,
University of Messina**

Prof. C. Milone | University of
Messina

Synthetic approaches to enhance materials for thermochemical energy storage

SYSTEMS



SPEAKER

**Prof. Y. Kato, Tokyo
Tech**

Prof. Y. Kato | Tokyo Institute of
Technology

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