

Twinning with Reality

Nicholas Stancioff

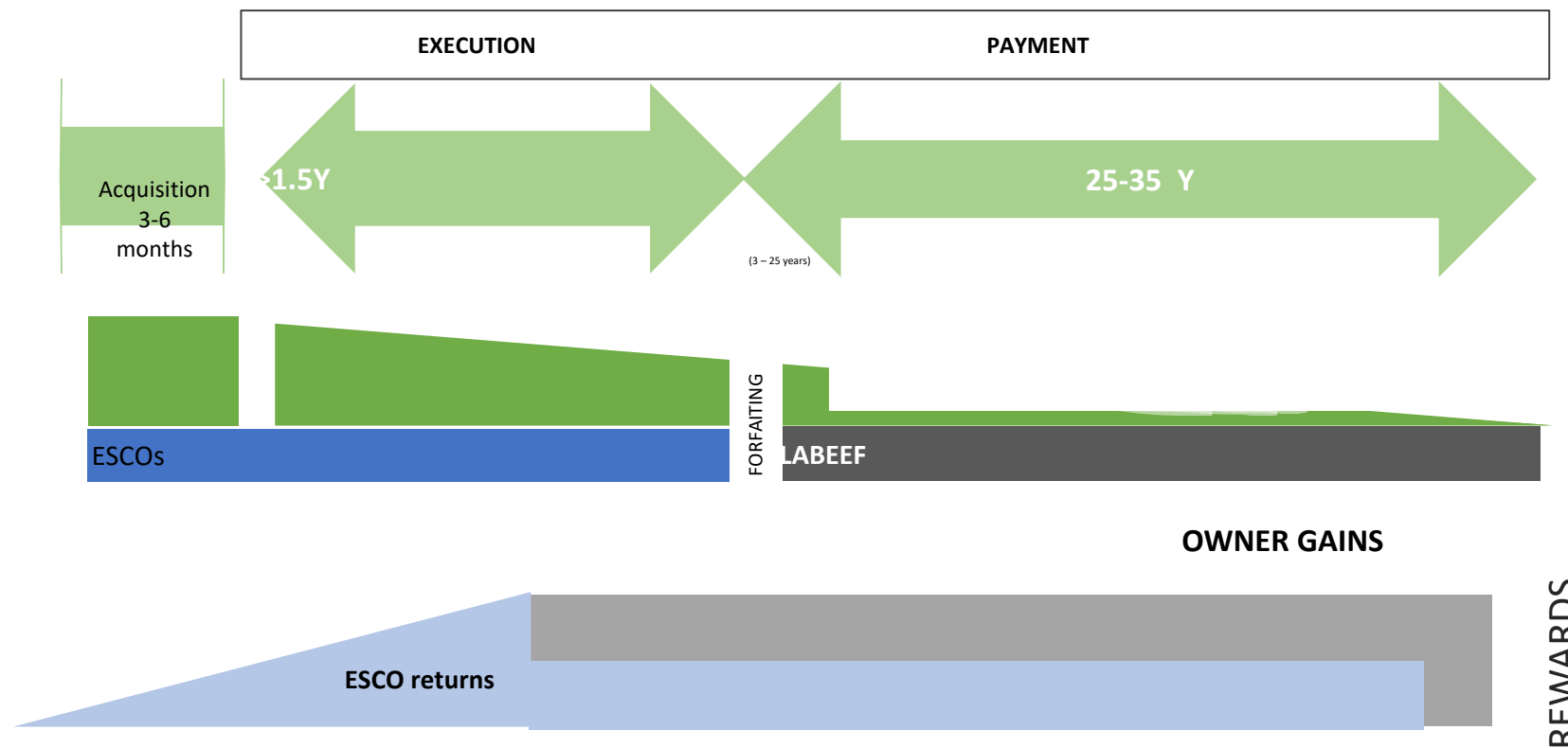
Funding for Future/Ekubirojs

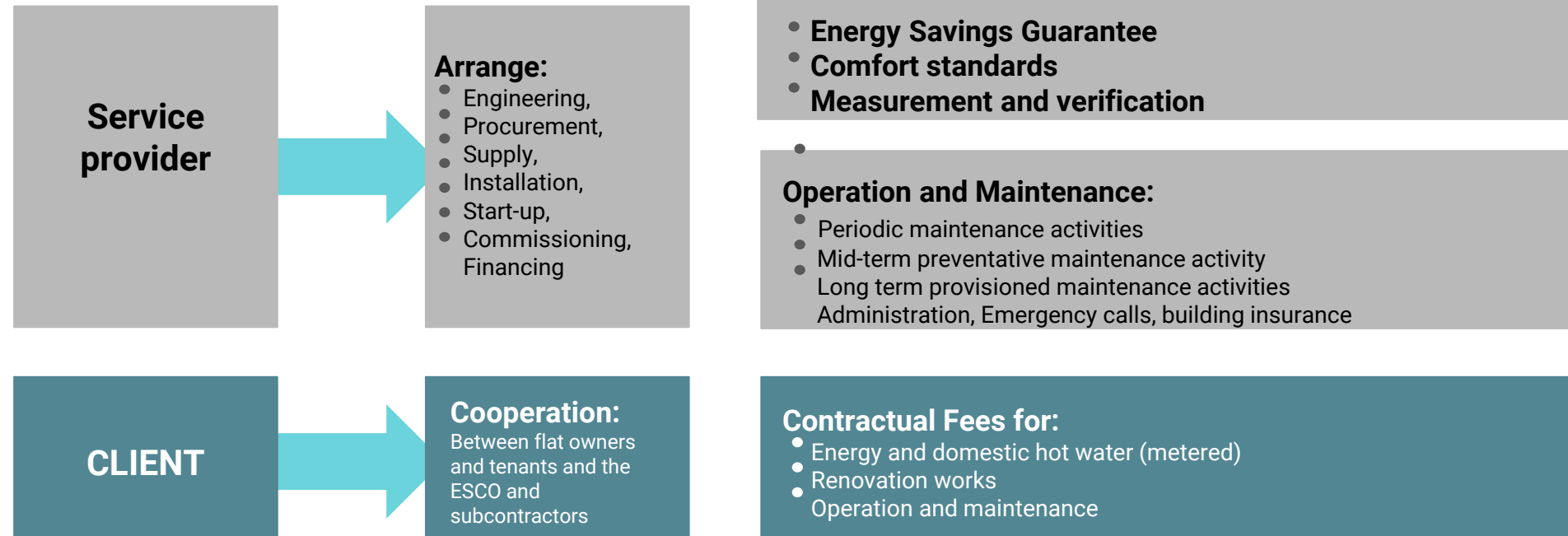
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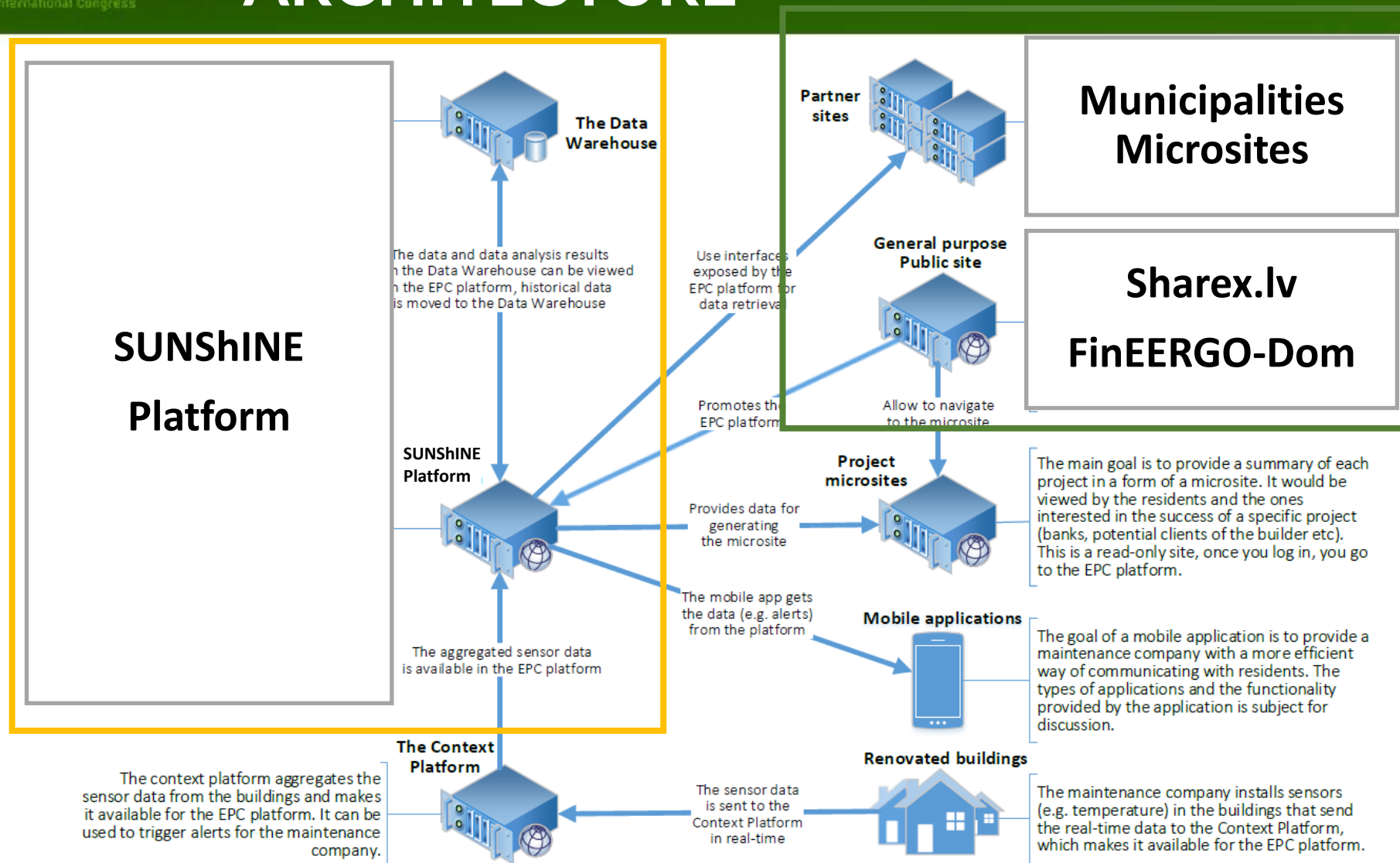


THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S H2020 PROGRAMME UNDER GRANT AGREEMENT NO. 820805.

LABEEF sells performance, safety, health and comfort targets and buys low risk

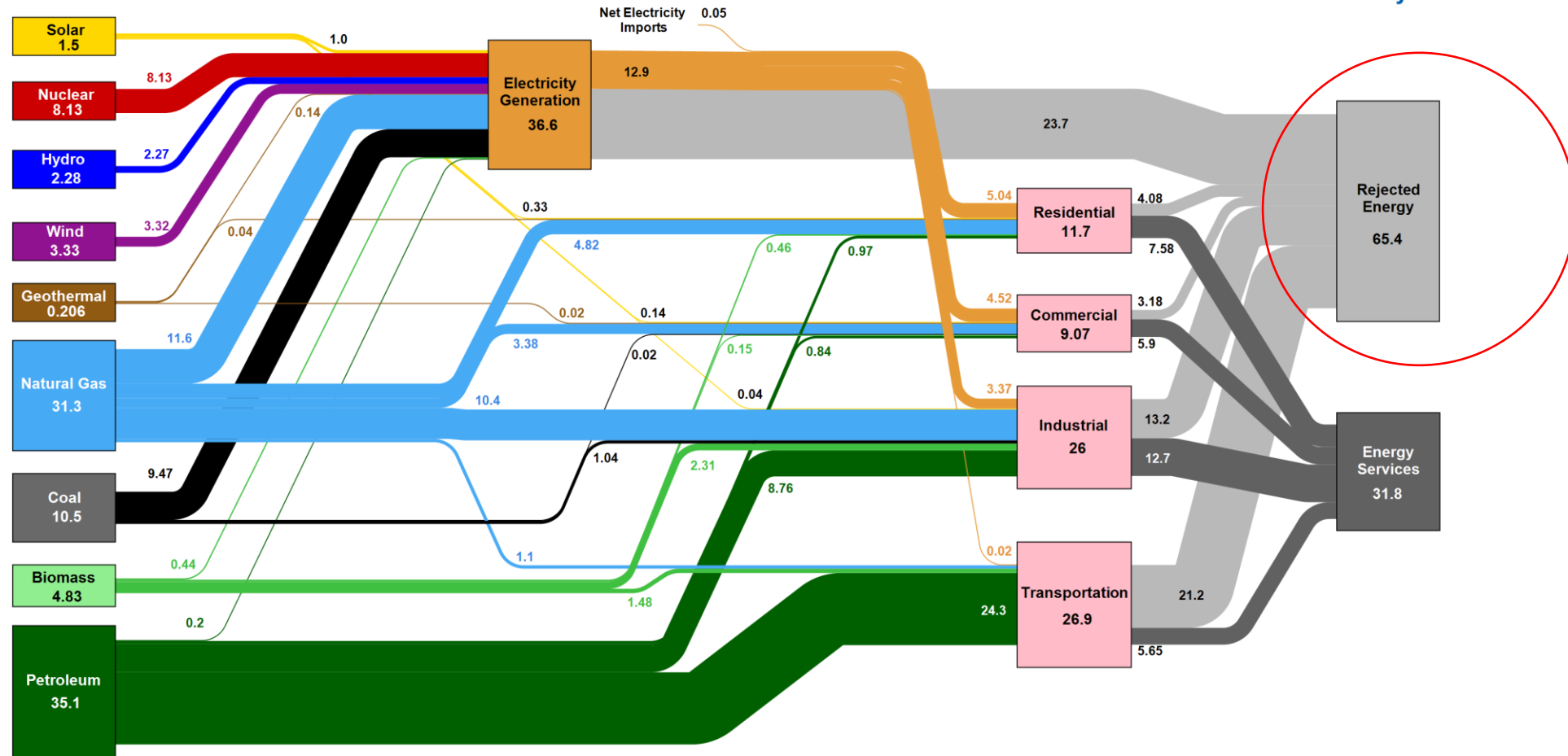






Estimated U.S. Energy Consumption in 2021: 97.3 Quads

Lawrence Livermore
National Laboratory



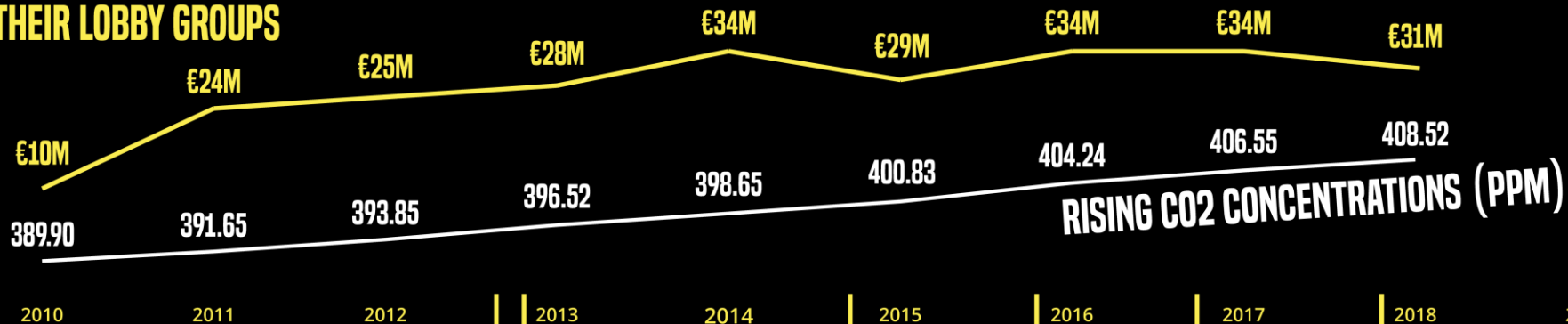
Source: LLNL March, 2022. Data is based on DOE/EIA MER (2021). If this information or a reproduction of it is used, credit must be given to the Lawrence Livermore National Laboratory and the Department of Energy, under whose auspices the work was performed. Distributed electricity represents only retail electricity sales and does not include self-generation. EIA reports consumption of renewable resources (i.e., hydro, wind, geothermal and solar) for electricity in BTU-equivalent values by assuming a typical fossil fuel plant heat rate. The efficiency of electricity production is calculated as the total retail electricity delivered divided by the primary energy input into electricity generation. End use efficiency is estimated as 65% for the residential sector, 65% for the commercial sector, 21% for the transportation sector and 49% for the industrial sector, which was updated in 2017 to reflect DOE's analysis of manufacturing. Totals may not equal sum of components due to independent rounding. LLNL-MI-410527

The Green Wave

- When will it come?

MONEY SPENT EACH YEAR BY BIG OIL AND GAS TO INFLUENCE EU DECISIONS

TOP 5 OIL AND GAS MAJORS
+ THEIR LOBBY GROUPS



KEY EU CLIMATE DECISIONS



#FOSSILFREEPOLITICS

OCTOBER 2012
ENERGY EFFICIENCY DIRECTIVE

DECEMBER 2012
ENERGY ROADMAP 2050

OCTOBER 2014
EU CLIMATE & ENERGY TARGETS

DECEMBER 2015
PARIS CLIMATE AGREEMENT

NOVEMBER 2017
REVISED EU EMISSIONS
TRADING SYSTEM

DECEMBER 2018
NEW RENEWABLE
ENERGY DIRECTIVE &
ENERGY EFFICIENCY
DIRECTIVE

MARCH 2019
ELECTRICITY
MARKET DESIGN

PRESENT (ONGOING)
EU 2050 LONG-TERM
CLIMATE STRATEGY

Declared annual EU lobby spending of Shell, BP, Total, ExxonMobil and Chevron and their fossil fuel lobby groups

dEEp retrofits – the obvious

Renovation Rate – no scale <.2% deep (without monitoring)

No lobby – vs renew vs carbon vs automotive vs developers

Policies

programs cannibalizing

programs locking out future savings

programs without accountability

Increasing Inequalities

Leads to lack of trust

Harmonized national policies reaching across election mandates:
20 year needed - 10 year minimum

Policies requiring EE First with real consequences

Digital Financial Instruments integrated in FLC TWIN

before

during

after

Digital twins combined with Financial Platforms would result in:

Closing resources gap:

Reduced Transaction costs

Reduced Information Asymmetry

Negawatts first

Local Watts second

Central management and distributed Production & Storage

**Buildings must be
“virtual power plants”**





2ND BUILDING DIGITAL TWIN International Congress

ORGANIZED BY:



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