



Energy Efficiency 2022

Dr Kevin Lane, Senior Programme Manager

Spanish Energy Club, 10 February 2023

Energy efficiency 2022 overview

1. Recent trends in energy efficiency markets
2. Role of energy efficiency in addressing the energy crisis
3. Special focus chapter on ASEAN

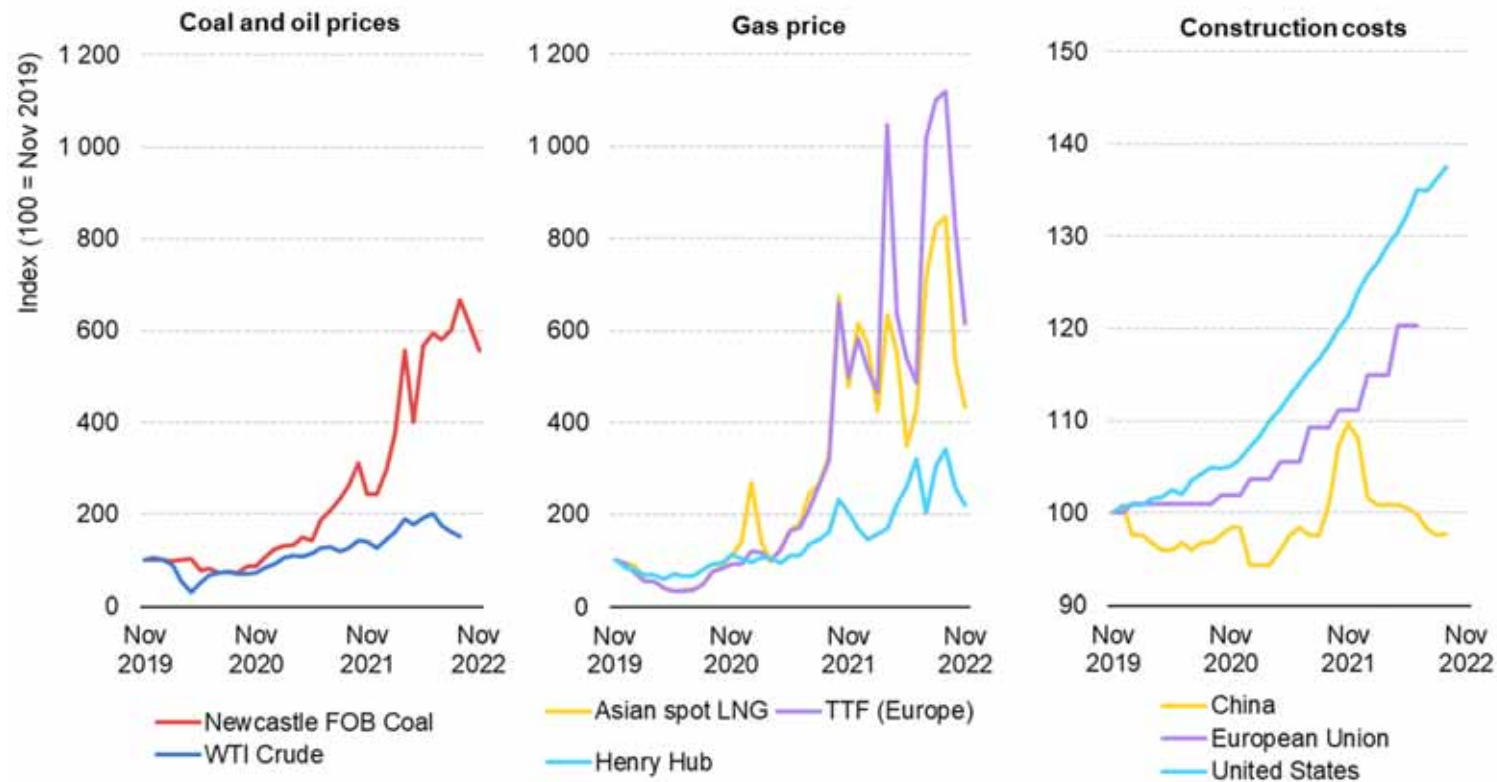
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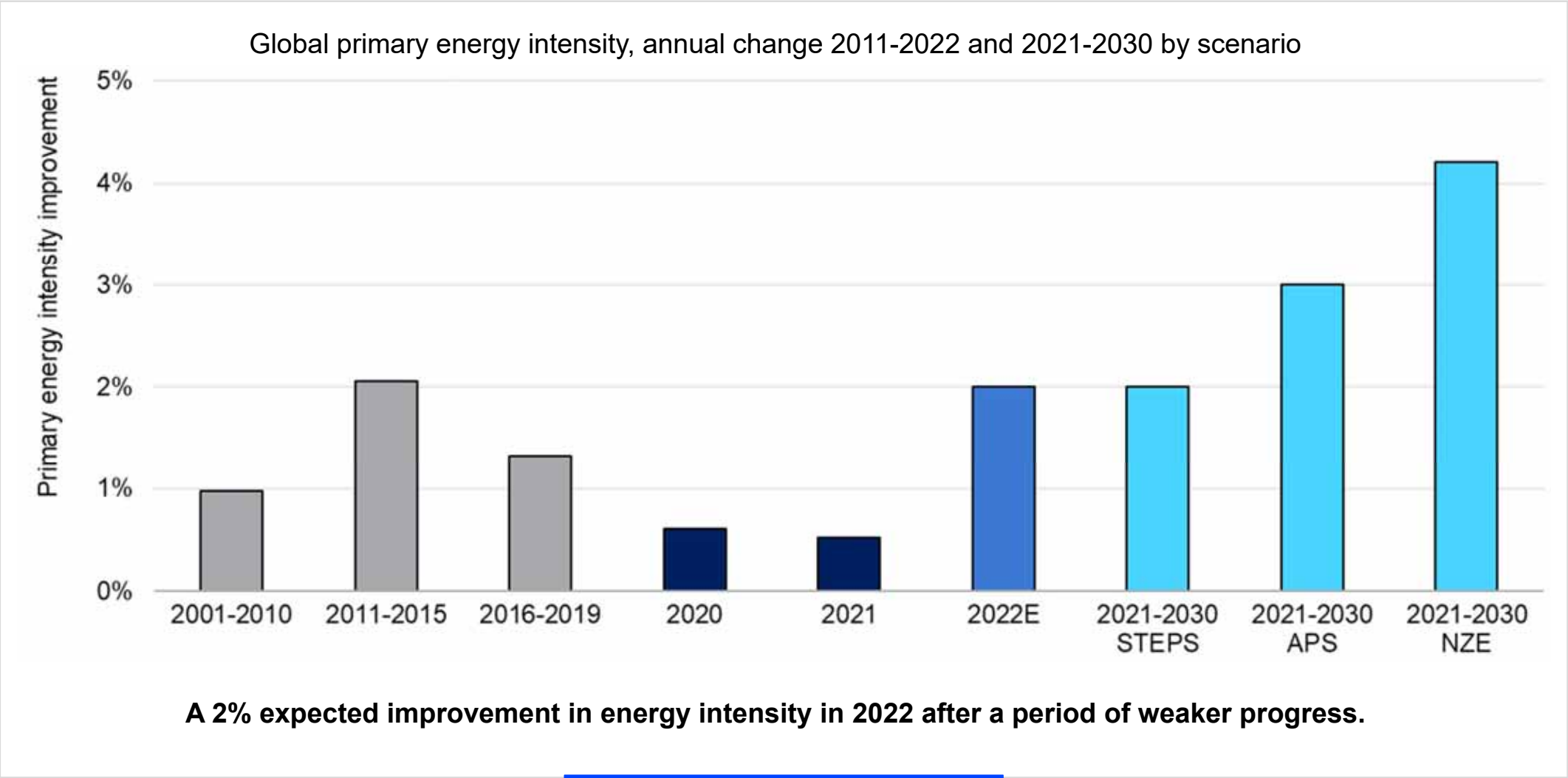
Energy crisis is putting the spotlight on the efficiency agenda

Wholesale energy price and construction cost indices 2019-2022



Governments are turning to efficiency as it can simultaneously meet affordability, security and climate goals.

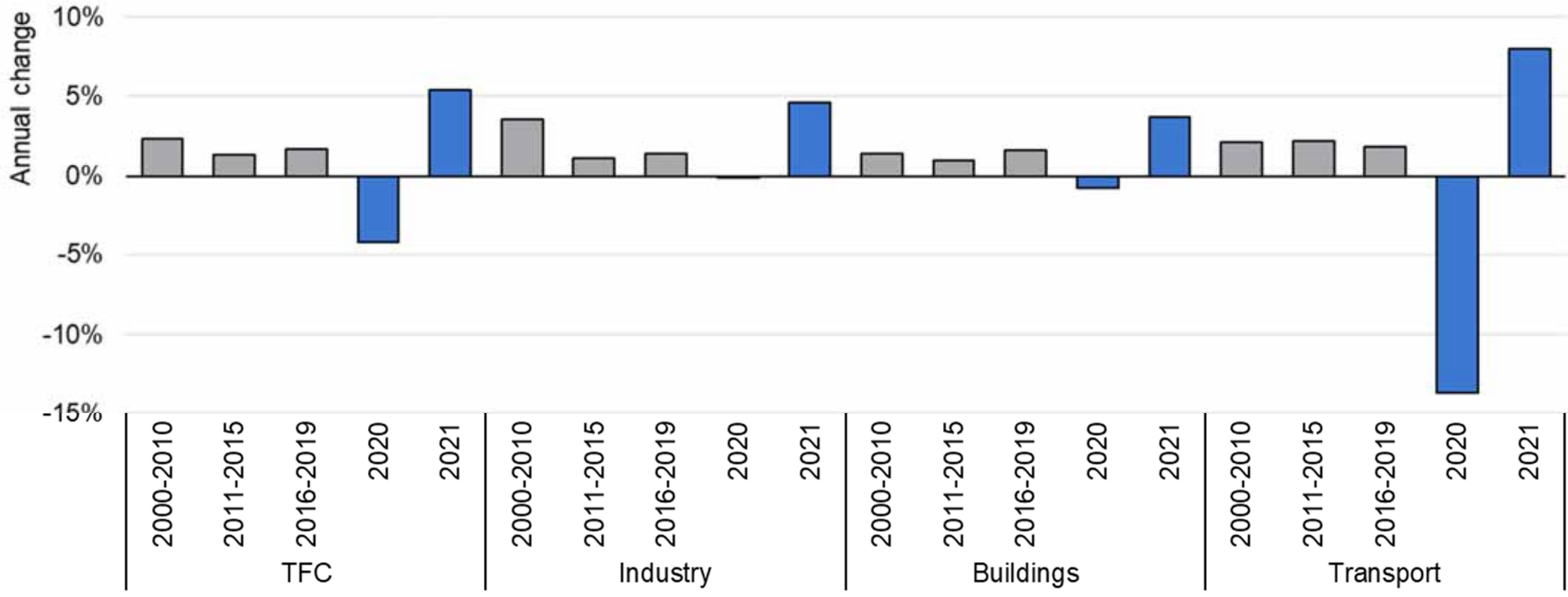
Emerging signs of a turning point for energy efficiency in 2022



Energy demand growth slower after Covid-recovery year



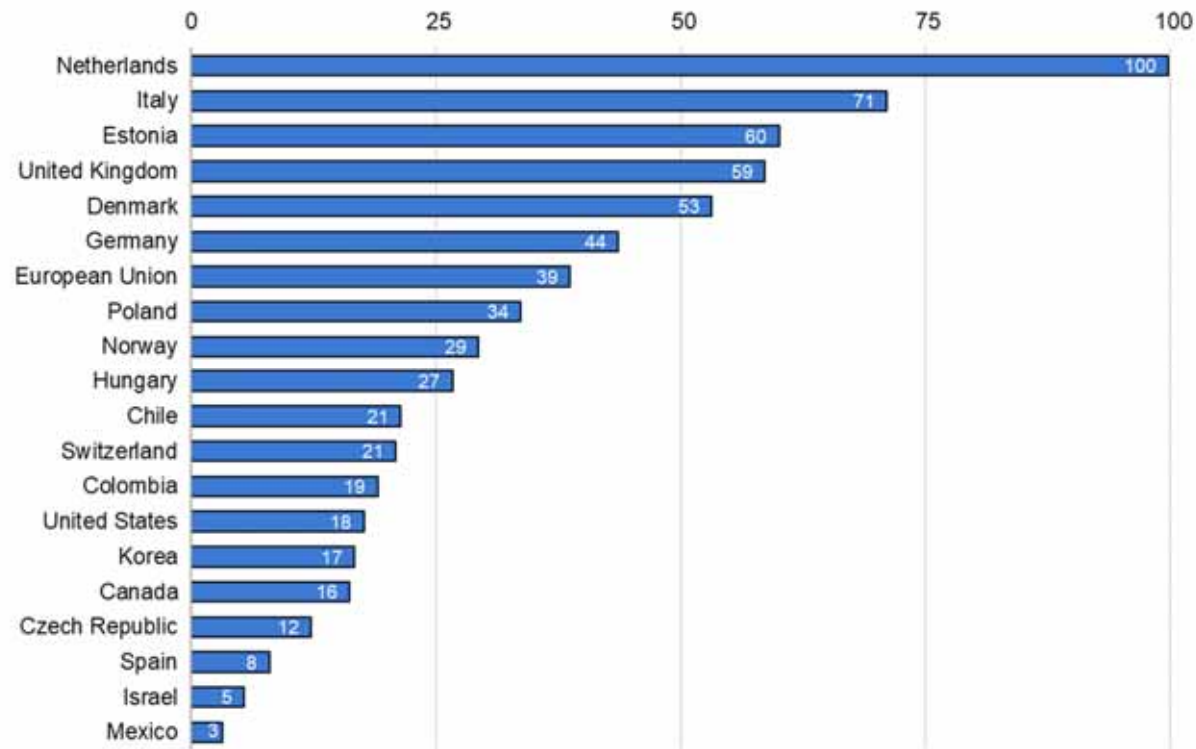
Change in global energy consumption by sector, 2000-2021



Energy crisis dampening energy demand growth after one of the largest increases in 50 years.

High fossil fuel prices are a major concern globally causing hardship

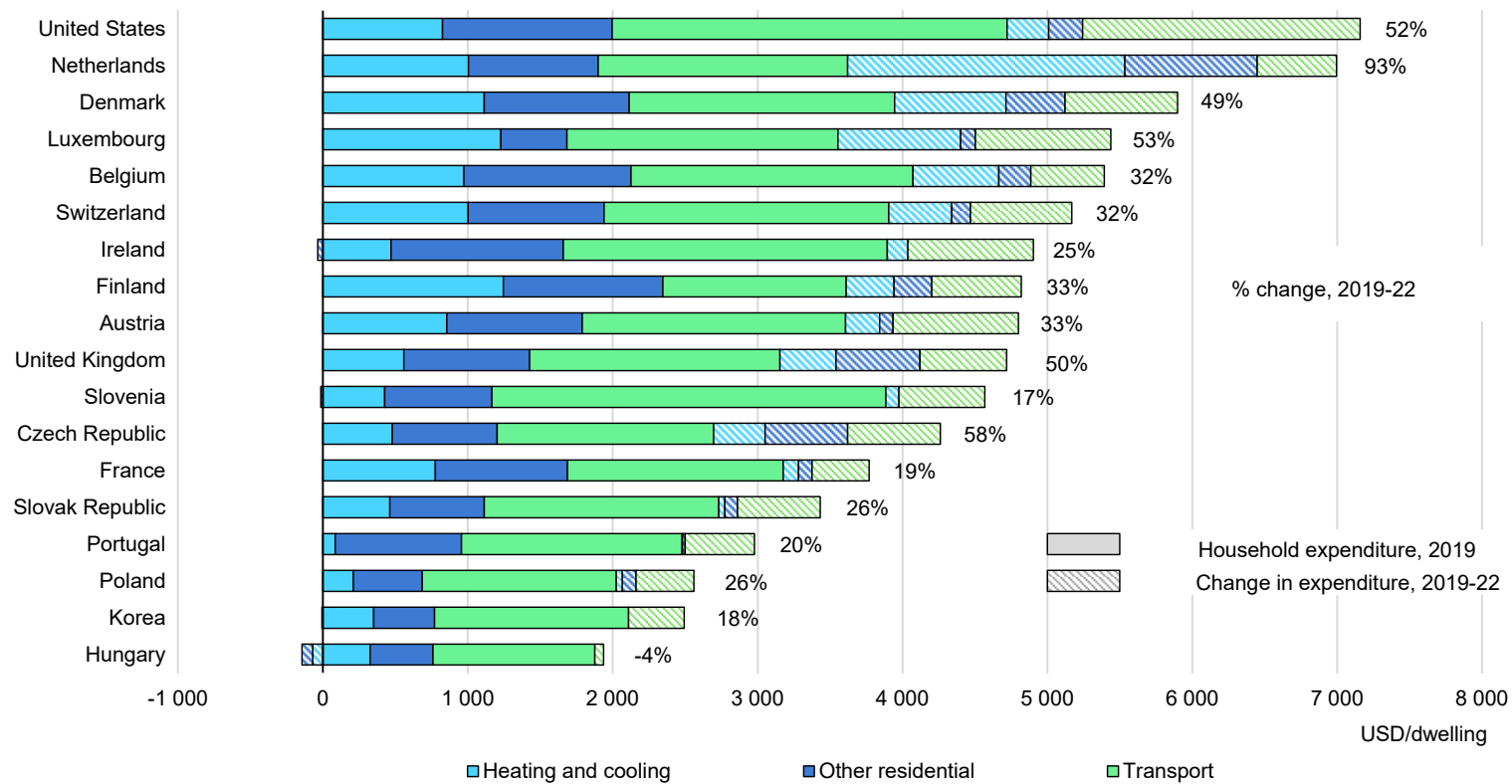
Energy price inflation, year-on-year change, October 2022



Governments have allocated more than USD 550 billion in temporary support to help with affordability this year

Consumers are facing higher energy bills

Annual energy expenditure in selected IEA countries, 2019 and 2022

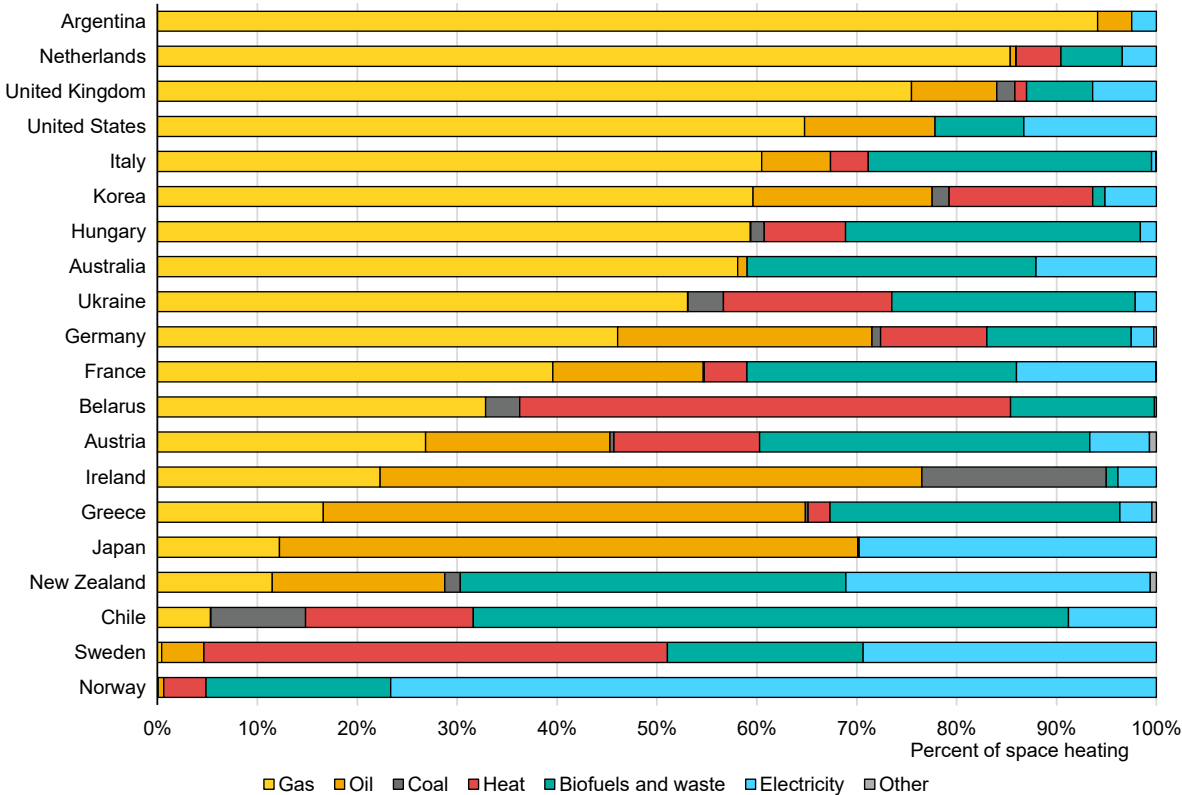


Energy bills have risen dramatically in 2022, worsening energy poverty and public health

Natural gas accounts for 40% of residential heating demand globally



Residential heating energy demand by fuel source, selected countries, 2020

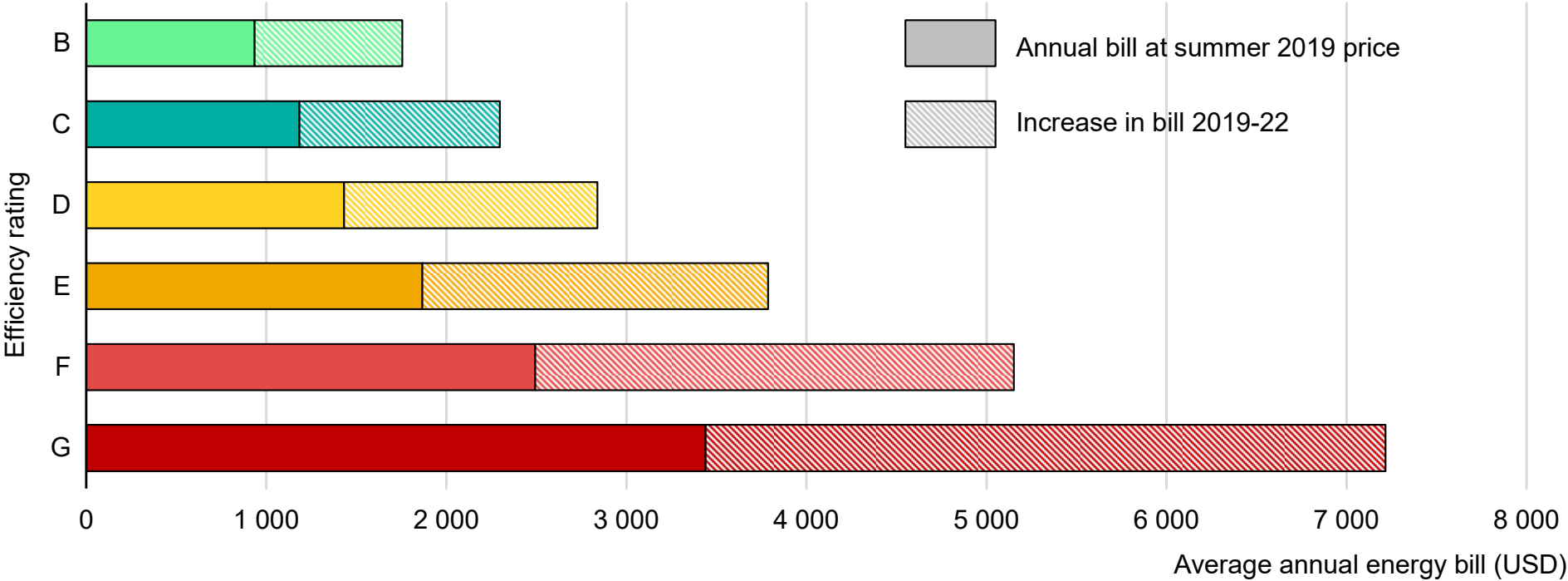


Countries accounting for 80% of residential gas demand in Europe have plans to ban new gas heating connections

Efficiency measures are the first-best policy to reduce bills



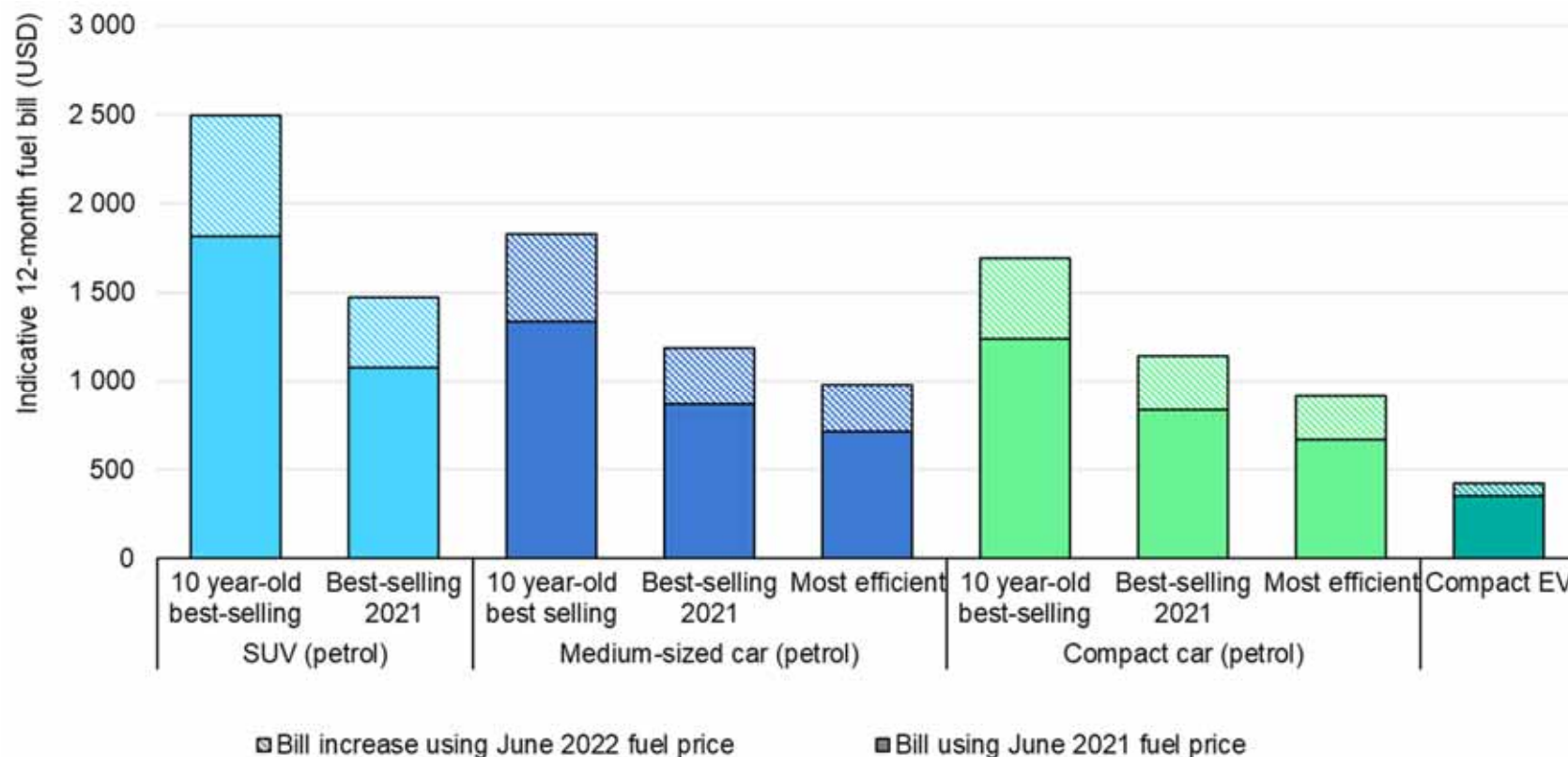
Household energy bills by EPC rating, United Kingdom, 2019 and 2022



Consumer running costs are commonly 40% lower for more efficient buildings, and as much as 75%.

People driving inefficient cars pay substantially more

Fuel bills for different personal vehicle types in Europe, June 2021 and June 2022

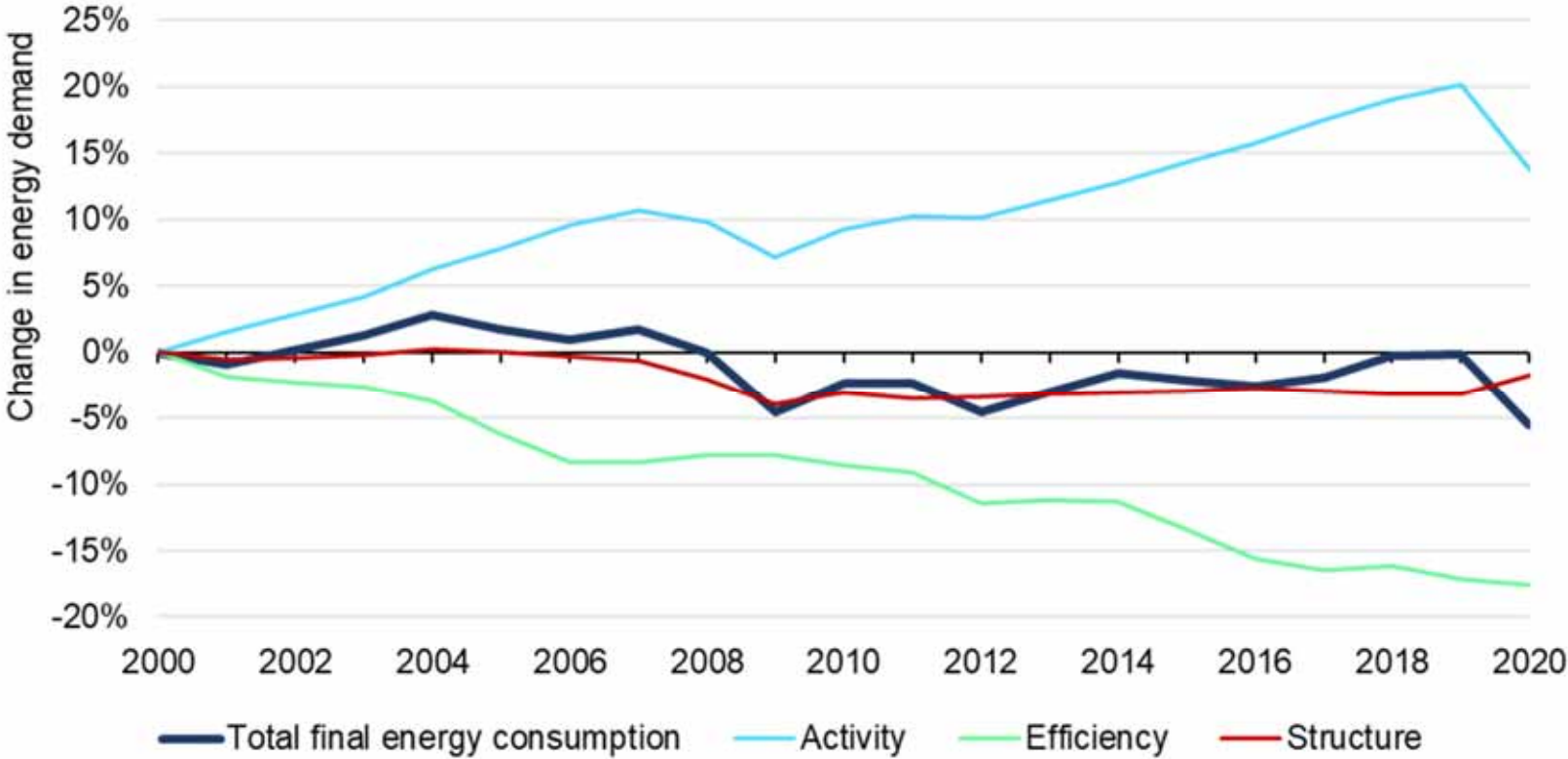


**New more efficient cars can be around 40% cheaper to run than old less efficient models in the same class
EVs can offer over 50% cost savings to operate over the most efficient conventional equivalent**

Efficiency lowers energy bills by USD 680 billion in IEA countries

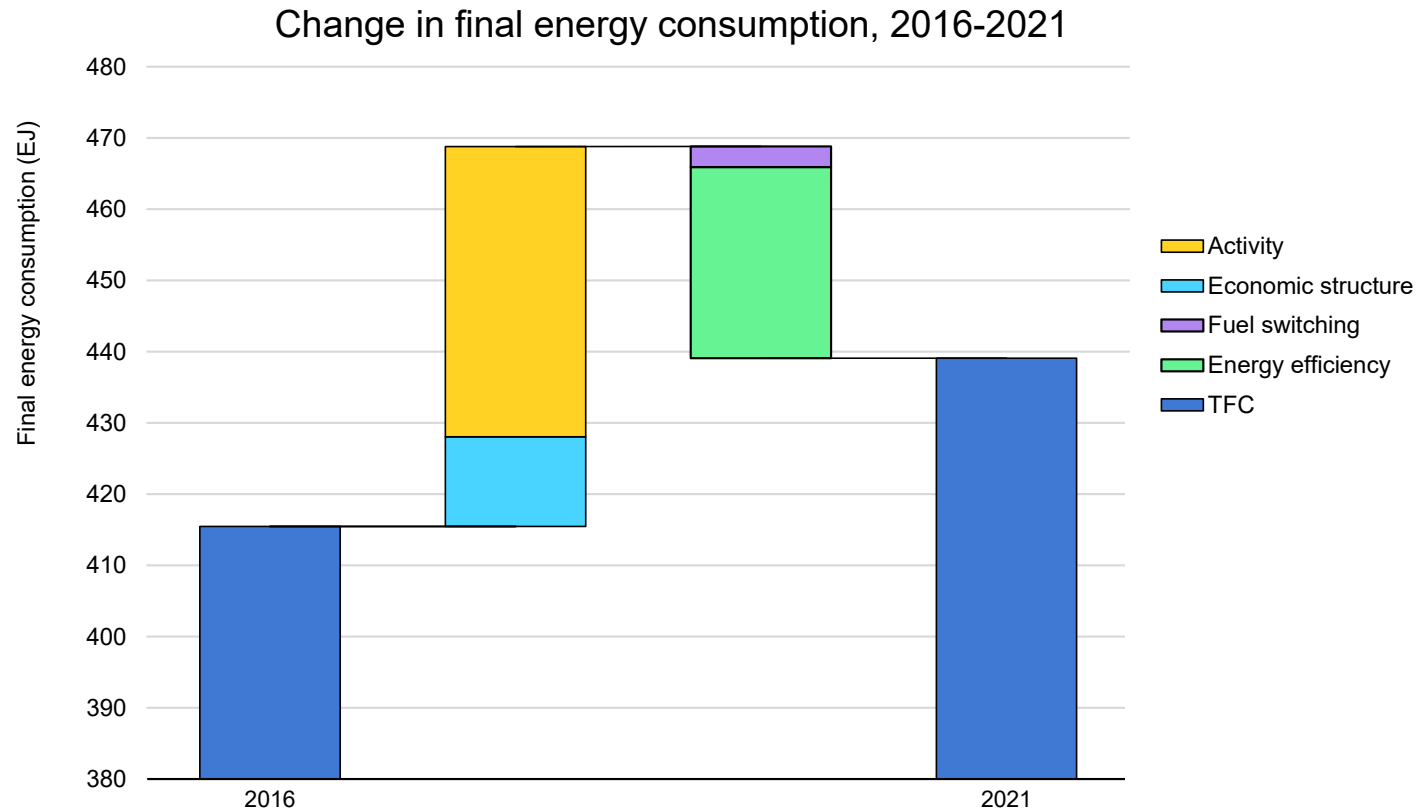


Change in energy demand and drivers, IEA countries, 2000-2020



**Within the 31 IEA member countries energy consumption efficiency provided around 24 EJ of energy savings
The impact of efficiency has been so great energy demand has stayed steady at around 140 EJ while GDP grew 40%**

Efficiency also plays a key role in delivering global energy security

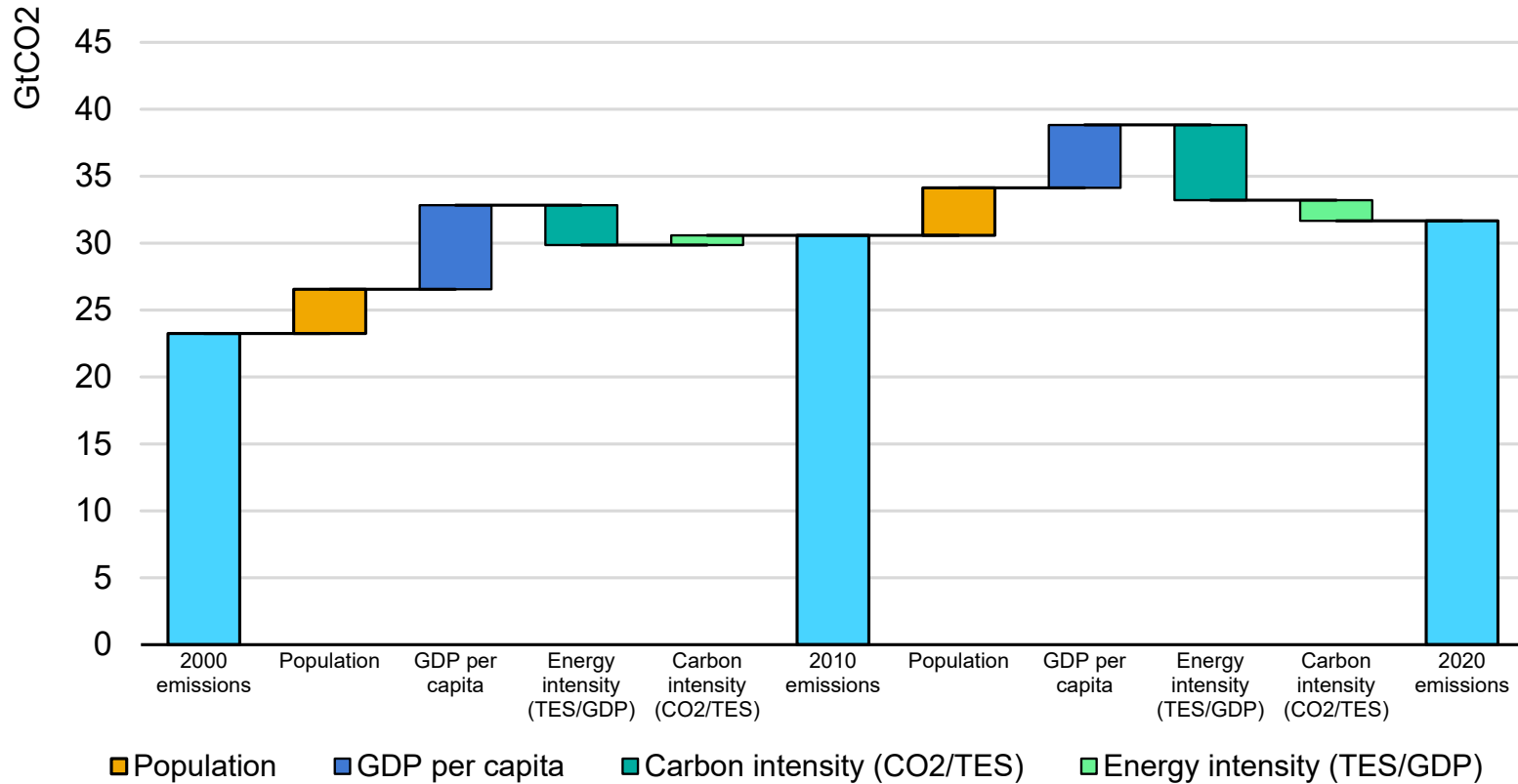


Efficiency gains have halved the potential growth in global energy demand over the last six years.

Without efficiency gains CO2 emissions would be 30% higher today



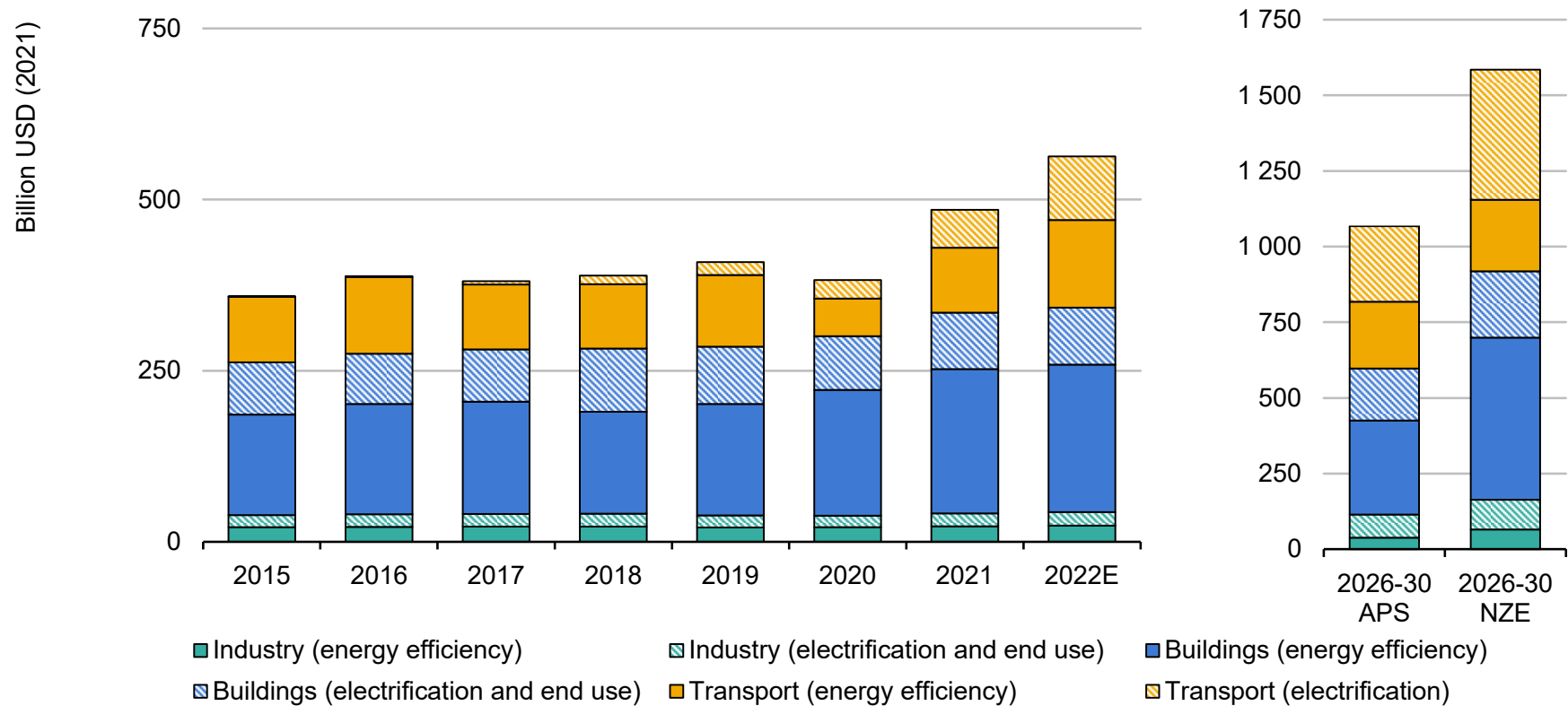
Global CO2 emissions from fuel combustion and drivers, 2000-2020



Improvements to energy intensity have offset half the emissions growth from higher incomes and population.

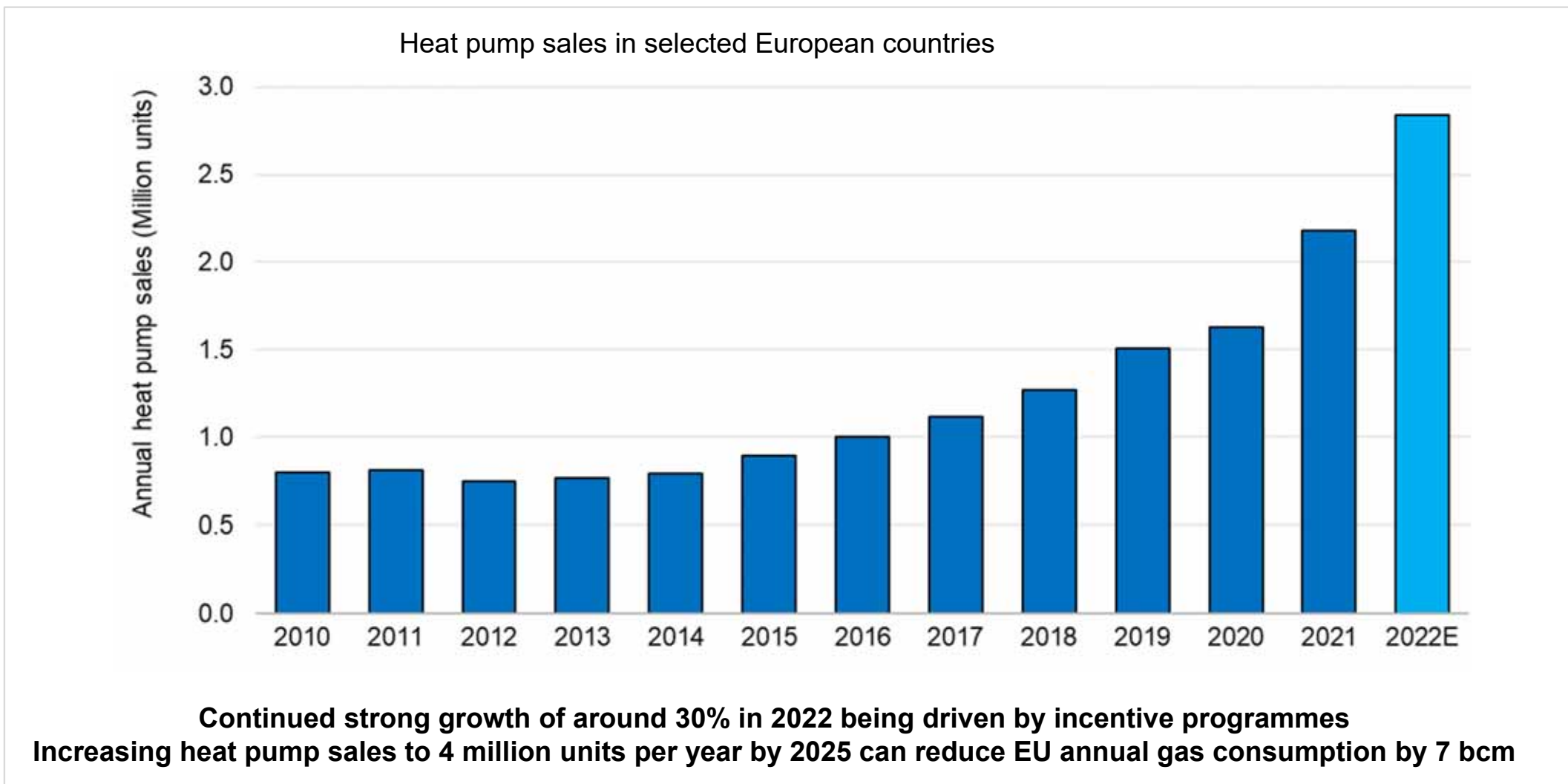
Global efficiency-related investment up 16% in 2022

Energy efficiency investment, 2015-2022 and average annual investment needs 2026-2030 by scenario



Transport efficiency investment up by 47% in 2022 led by electric vehicle sales
Recent policy announcements will boost investment in all sectors

European heat pump sales have been growing strongly



The Association of South East Asian Nations (ASEAN)



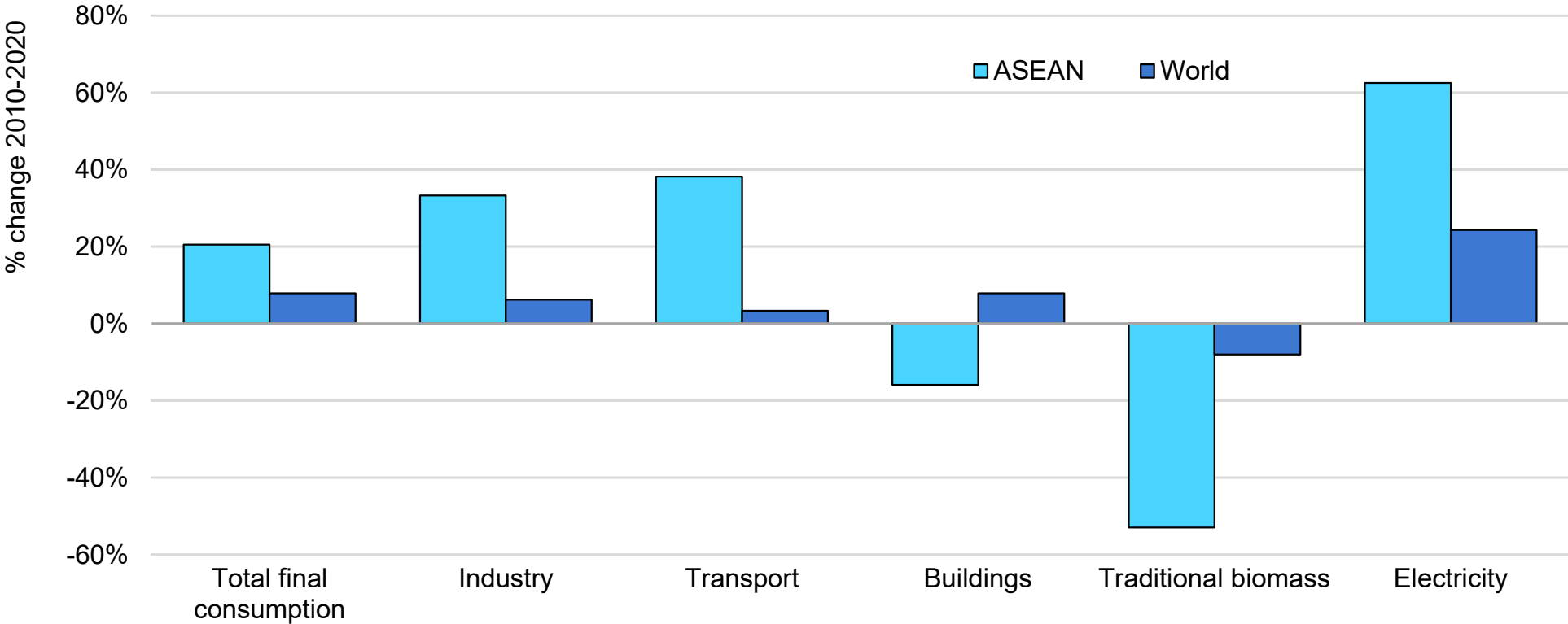
- ASEAN is home to more than 660 million people.
- Most of the economies have doubled in size over the past two decades, and it is moving towards becoming one of the largest regional market for goods and services in the world.
- At the same time energy demand has been growing by around 3% per year.
- Three-quarters of growth in energy demand between now and 2030 is expected to be met by fossil fuels under current policy settings.

Indonesia
Malaysia
Philippines
Singapore
Thailand
Brunei Darussalam
Viet Nam
Lao PDR
Myanmar
Cambodia

Energy demand is growing rapidly in the ASEAN region



Energy consumption trends in ASEAN and World, % change 2010-2020



Demand is being driven by increased wealth and access to energy services.

Clean energy is becoming less accessible to vulnerable households

- Access to clean cooking technologies has almost quadrupled during the past 2 decades, reaching 70% of the population but more than 200 million people in the region, mainly in rural areas, are being left behind.
- The World Bank values the negative impacts related to health, gender inequality, and environmental issues linked to the lack of the universal access to clean cooking at USD 280 billion per year.



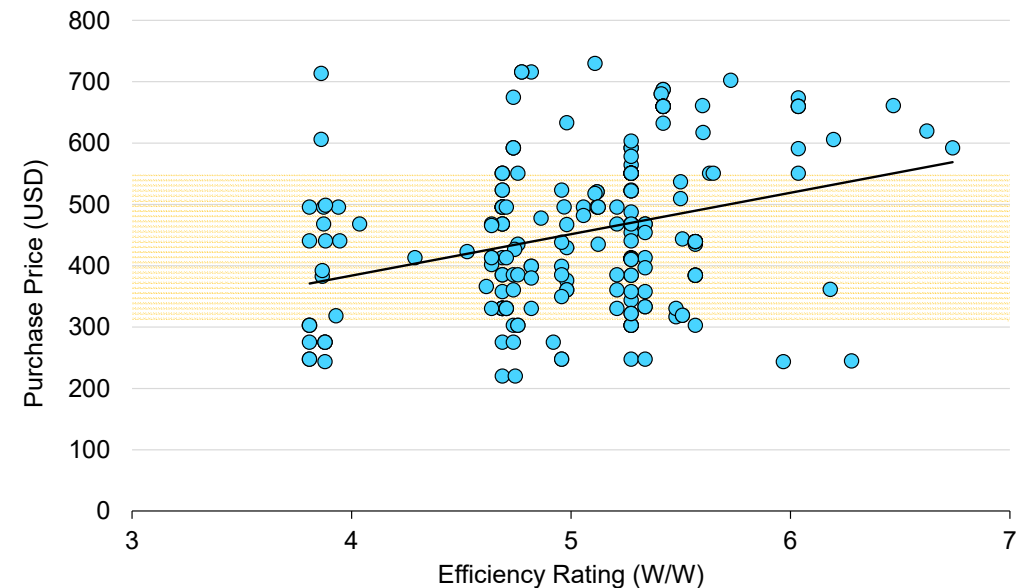
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In the last year, due to the Covid-19 and energy crises, 100 million more people may no longer be able to cook with clean fuels and 70 million can no longer afford electricity

Space cooling drives electricity consumption in ASEAN buildings

- Space cooling is among the fastest growing end uses in the region, with electricity consumption expected to more than quadruple by 2040.
- Market data shows that more efficient cooling systems are not necessarily more expensive.

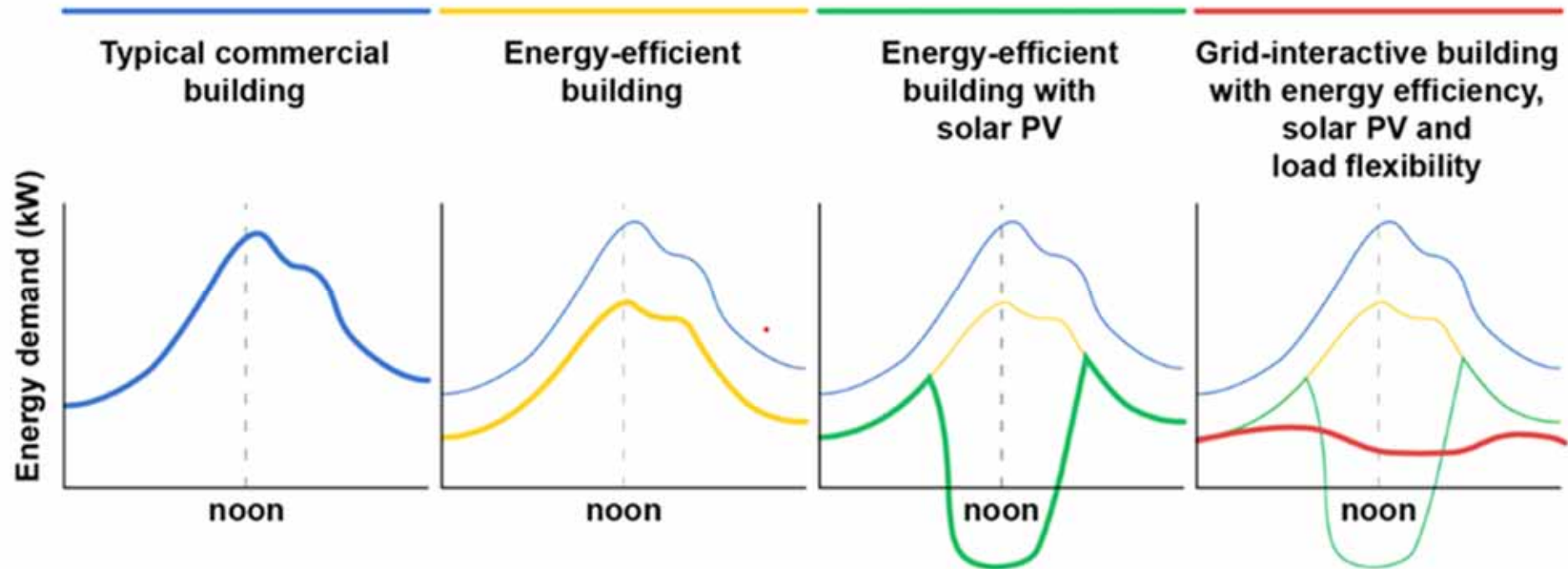
AC energy efficiency versus purchase price, Thailand, 2022



Policy action on more efficient ACs, fans and building envelopes could reduce space cooling energy use by over one-third by 2040

The future of buildings

Grid interactive buildings provide flexibility and efficiency



Grid interactive buildings and smart charging for EVs can help to manage the expanding share of variable renewable energy and increasing peak demand

Efficiency and electrification are key to the future of ASEAN transport

- Globally fuel economy standards play a key role in reducing future oil requirements in the transport sector.
- However, so far none of the ASEAN member states have adopted fuel economy or CO2 emission standards for any modes of transport.
- Two- and three-wheelers are key transport modes in ASEAN countries and provide opportunities for electrification.



[Image source:](#) EIAS



[Image source:](#) Reglobal

Energy Efficiency work in ASEAN



Roadmap Towards Sustainable and Energy-Efficient Space Cooling in ASEAN

International Energy Agency



Roadmap for Energy Efficient Buildings and Construction in ASEAN

Timelines and actions towards net-zero carbon buildings and construction

International Energy Agency



Interactive Online Training

Singapore-IEA Regional Training Programme on Efficient Grid-Interactive Buildings

5-7 July 2022

8am - 12pm Paris / 2pm - 6pm Singapore



Self-paced Online Course

IEA
EE6

Singapore-IEA Regional Training Programme on Efficient Grid-Interactive Buildings



Will 2022 see a turning point for energy efficiency progress?

Countries mobilise over USD 1 trillion on efficiency measures in crisis response packages



National plans with a major focus on efficiency launched by 16 governments, representing over half of global energy use



Global wave of energy awareness campaigns is helping citizens take action to reduce demand



Will 2022 see a turning point for energy efficiency progress?

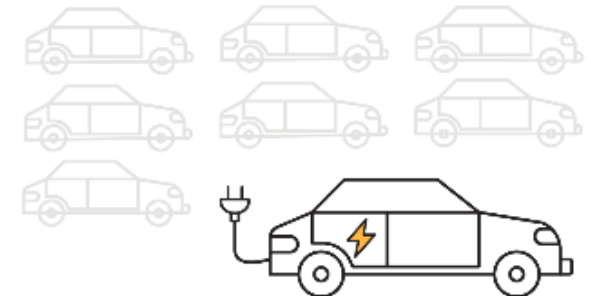
Digital demand response helps manage several major power supply emergencies



Heat pump incentives currently operating in countries covering half of global energy use in buildings



1 in every 8 cars sold is electric thanks to strong consumer demand and government support



Will 2022 see a turning point for energy efficiency progress?

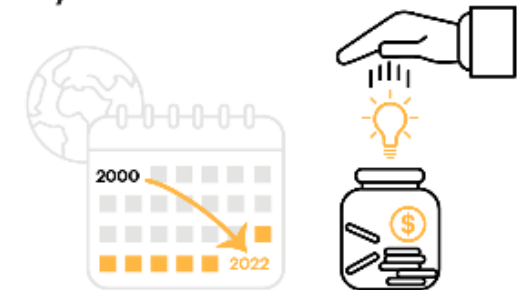
Cooling efficiency policies implemented or under development in all ASEAN countries



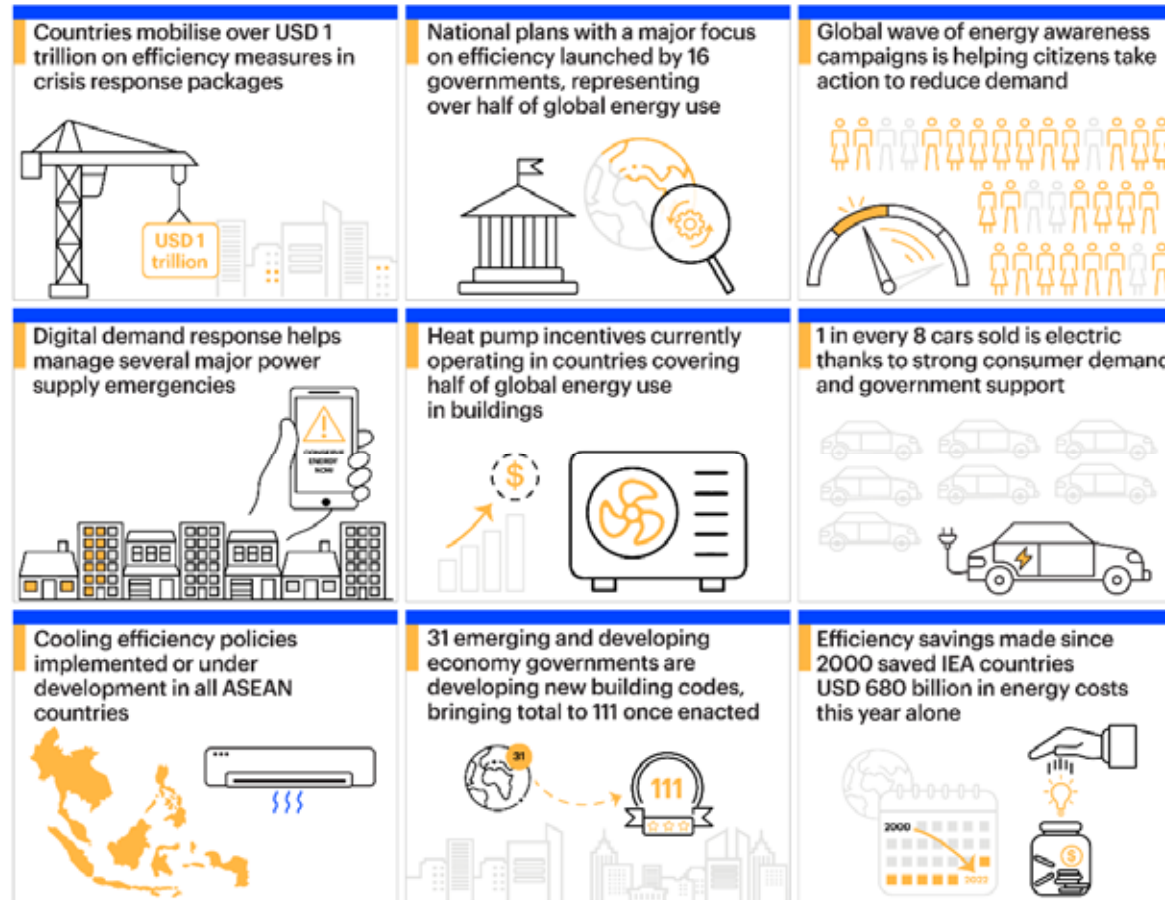
31 emerging and developing economy governments are developing new building codes, bringing total to 111 once enacted



Efficiency savings made since 2000 saved IEA countries USD 680 billion in energy costs this year alone



Will 2022 see a turning point for energy efficiency progress?



Many hopeful signs through new policy focus, but challenges remain

IEA Annual Global Conference on Energy Efficiency

- The 7th conference held in Denmark, June 2022
- 26 governments issued a joint statement, “calling on all governments, industry, enterprises and stakeholders to strengthen their action on energy efficiency” and welcomed the Sønderborg Action Plan

8th Annual Global Conference on Energy Efficiency Paris, 6-8 June 2023



Thank you