Is there a link between Energy Poverty, Energy Efficiency and (Renewables) for Consumer?

Garret Patrick Kelly
Principal
SEE Change Net Foundation

This project is funded by the European Union
Instrument for Pre-accession Assistance (IPA) Civil Society Facility (CSF)
The views expressed in this presentation do not necessarily reflect the views of the European Commission

SEE CHANGE NET

”It was not the candle makers who invented the light bulb!”

Dr. Bertrand Piccard

This project is funded by the European Union
Instrument for Pre-accession Assistance (IPA) Civil Society Facility (CSF)
The views expressed in this presentation do not necessarily reflect the views of the European Commission

SEE CHANGE NET

What is Energy Poverty?

Poverty is lack of access to resources and lack of opportunities
896 million of people in extreme poverty vs. 2 billion energy poor

Energy poverty is a situation where a household is unable to access a socially, environmentally & materially necessitated level of energy services in the home (Bouzarovski et al. 2010)

New EU member states >30% of households

The parameters:

- **The efficiency of the building stock**
- **The ability to control the temperature in the building stock**
- **The technology used to warm/cool building stock**
- **The source, energy efficiency and cost of energy**

This project is funded by the European Union
Instrument for Pre-accession Assistance (IPA) Civil Society Facility (CSF)
The views expressed in this presentation do not necessarily reflect the views of the European Commission

SEE CHANGE NET

What is the legal context?

Treaty establishing the energy community (Article 10):
Each Contracting Party shall implement the *acquis communautaire* on energy

EU Internal Market in Electricity (2009/72/EZ) and Natural Gas (2009/73/EZ) Directive

member states to define energy poverty and protect vulnerable energy consumers

The Energy Efficiency Directive (2012/27/EU)

….to ensure access to greater energy efficiency to vulnerable consumers

This project is funded by the European Union
Instrument for Pre-accession Assistance (IPA) Civil Society Facility (CSF)

SEE CHANGE NET

What is the cost context?

	Heating System	Fuel	Unit of Measure	Heat output (kWh)	Purchasing unit	Heat output per unit (kWh)	Unit price (KM)	kWh/KM	Heat cost (KM/kWh)	Heater efficiency	Heat cost (kWh/KM)	Annual cost (KM)*	Annual cost per heated area unit KM/m2
2	**wood stove, old type (30% efficiency)**	firewood (beech) 50% moisture	kg	2	m3	1485	120	12.4	0.081	30%	3.7	**1617**	**26.9**
3	**wood stove, old type (30% efficiency)**	firewood (beech) 20% moisture	kg	3.8	m3	1930	120	16.1	0.062	30%	4.8	**1244**	**20.7**
4	**convection heater**	electrical energy	kW	1	kWh	1	0.155	6.5	0.155	100%	6.5	**930**	**15.5**
5	**district heating ("Toplane" Sarajevo)**											**922**	**15.4**
6	**coal stove, old type (30% efficiency)**	coal "Banovici"	kg	4.2	tona	4200	140	30.0	0.033	30%	9.0	**667**	**11.1**
7	**space heater (70% efficiency)**	natural gas	m3	9.47	m3	9.47	0.67	14.1	0.071	70%	9.8	**609**	**10.2**
8	**certified wood stove (80% efficiency)**	firewood (beech) 50% moisture	kg	2	m3	1485	120	12.4	0.081	80%	9.9	**606**	**10.1**
9	**central heating (80% boiler efficiency)**	wood pelets	kg	4.86	tona	4860	370	13.1	0.076	80%	10.5	**571**	**9.5**
10	**central heating (90% boiler efficiency)**	natural gas	m3	9.47	m3	9.47	0.67	14.1	0.071	90%	12.7	**474**	**7.9**
11	**certified wood stove (80% efficiency)**	firewood (beech) 20% moisture	kg	3.8	m3	1930	120	16.1	0.062	80%	12.9	**466**	**7.8**
12	**air conditioner (inverter type, COOP 4)**	electrical energy	kW	4	kWh	1	0.039	25.8	0.039	100%	25.8	**233**	**3.9**
13													
14	*** to heat a dwelling of 60m2 floor area**												
15													

This project is funded by the European Union
Instrument for Pre-accession Assistance (IPA) Civil Society Facility (CSF)
The views expressed in this presentation do not necessarily reflect the views of the European Commission

SEE CHANGE NET

Europe's top polluters

HEAL

CAN Climate Action Network Europe

sandbag smarter climate policy

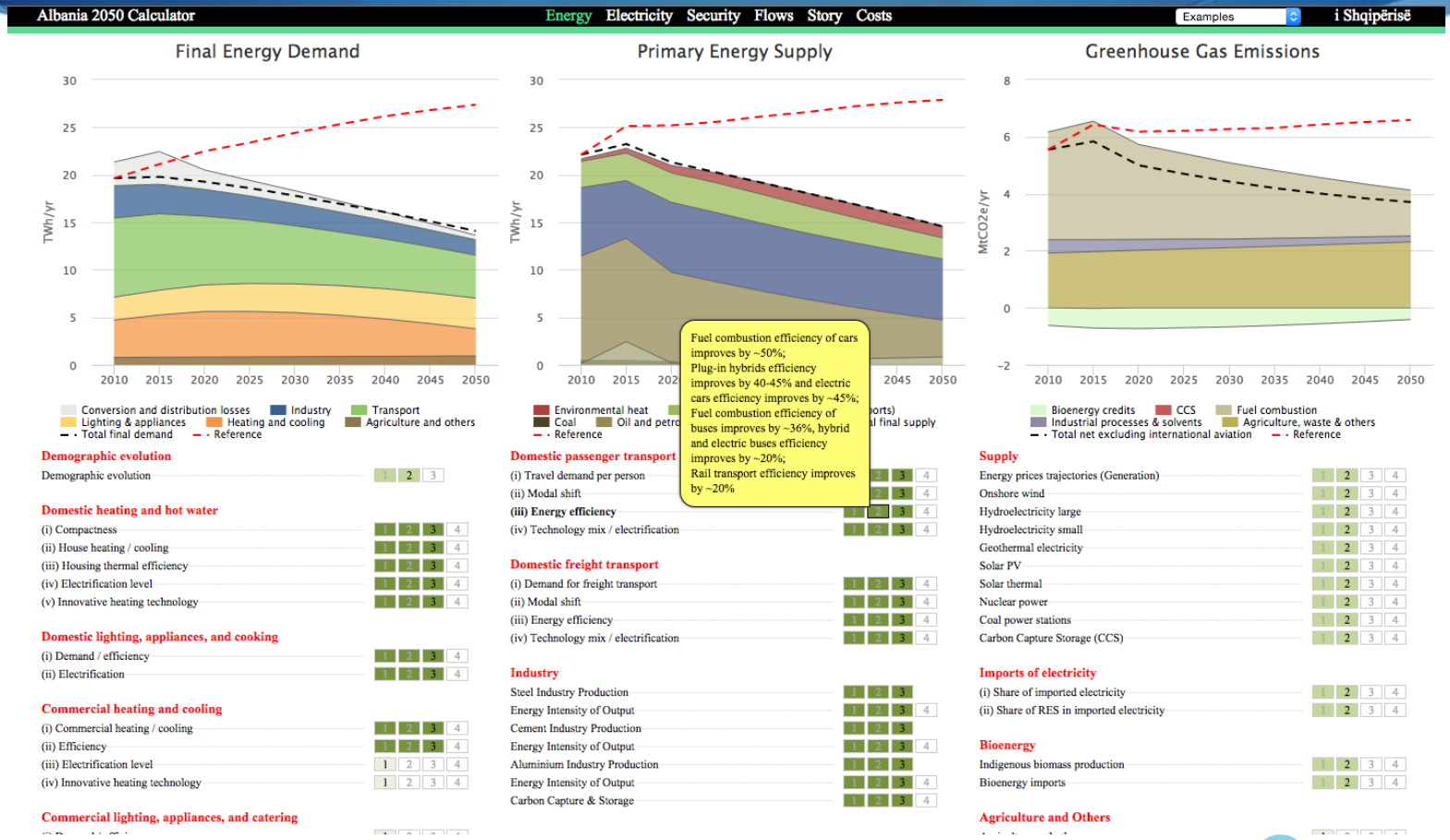
CEE Bankwatch Network

Europe Beyond Coal

SEE 2050 Calculator

This project is funded by the European Union
Instrument for Pre-accession Assistance (IPA) Civil Society Facility (CSF)
The views expressed in this presentation do not necessarily reflect the views of the European Commission

SEE 2050 Calculator
Drilling Down



This project is funded by the European Union
Instrument for Pre-accession Assistance (IPA) Civil Society Facility (CSF)
The views expressed in this presentation do not necessarily reflect the views of the European Commission

SEE CHANGE NET

2050 Residential & Service Sector Assumptions

Road to EU

RENOVATION RATE	Around ¾ of the existing buildings are renovated. This requires a sharp increase in renovation rates, from currently lower than 1% per year towards 2%-2.5% as of 2020.
RENOVATION DEPTH	Retrofitting of existing buildings ramps up – starting with significant improvements like wall and loft insulation and super-glazing, but reaching energy cuts of 90% or more from 2030.
NEW BUILTS	All new buildings are near-zero energy from 2025: they are well insulated and generate power from rooftop solar panels which is fed back into the grid.
HEATING TECHNOLOGY	Heating based on heat pumps ramps up, with up to 75% of heating coming from heat pumps. Additional heating includes burning biomass, from community scale or CHP systems. There's no gas, no oil, no coal.

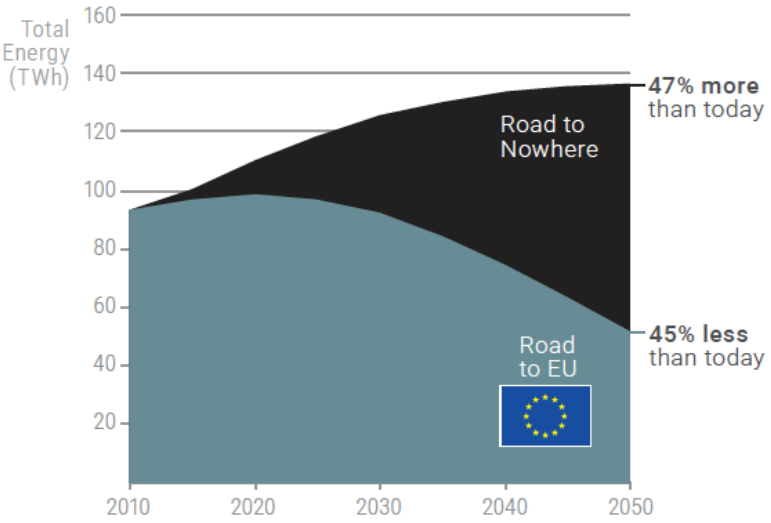
SEE CHANGE NET

Total final energy demand (heating & cooling) in buildings

Figure 7

TOTAL FINAL ENERGY DEMAND (HEATING & COOLING) IN BUILDINGS

TWh, South East Europe



The two pathways provide very different visions for future energy use in buildings. They are not predictions, but show the implications of different levels of ambition to improve the energy performance of buildings. Technologies are available, and targets are already in place in the EU. SEE needs equally ambitious targets as early as possible in order to capture a large share of the energy-saving potential and avoid the risk of lock-in.

Efficiency in buildings also means higher level of comfort. A well-insulated building will feel warmer in the winter, cooler in the summer and be healthier to live in.

SOURCES: SEE 2050 Carbon Calculator (www.see2050carboncalculator.net) Energy Efficiency...Just do it! Act now for warmer homes, local jobs and cleaner air! 2015 (http://seechangenetwork.org/wp-content/uploads/2013/07/Report-Energy-Efficiency-Just-Do-It.pdf), http://ec.europa.eu/transport/media/publications/doc/trends-to-2050-update-2013.pdf, http://www.topten.eu/

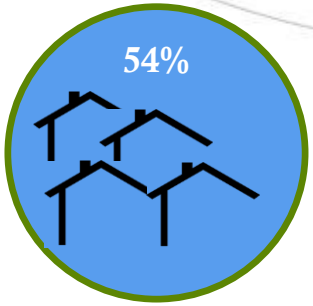
SEE CHANGE NET

By refurbishing homes to reduce heating requirements, we can reduce household energy expenditure and lift people out of energy poverty

SEE CHANGE NET

A 1

Renovation scale



Renovation depth, 2025

Class B
≤ 60
kwh/m2

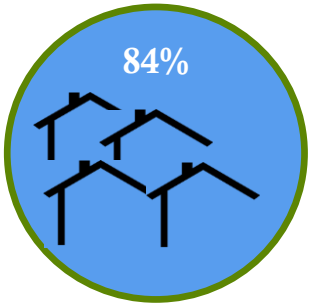
New Buildings, 2025

Class A
≤ 35
kwh/m2

Heating fuel

A 3

Renovation scale



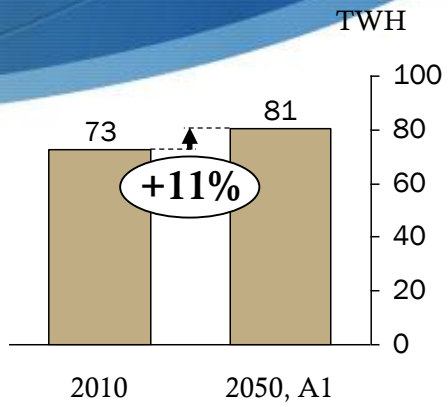
Renovation depth, 2030

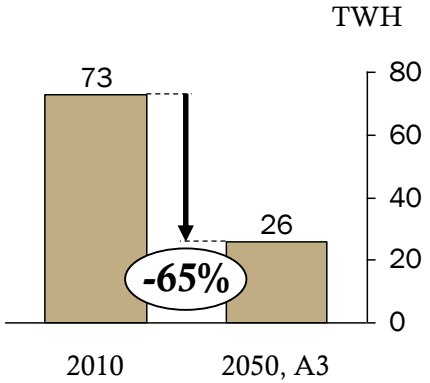
Class A +
≤ 17
kwh/m2

New Buildings, 2025

Class A *
≤ 17
kwh/m2

Heating fuel





Supported by:

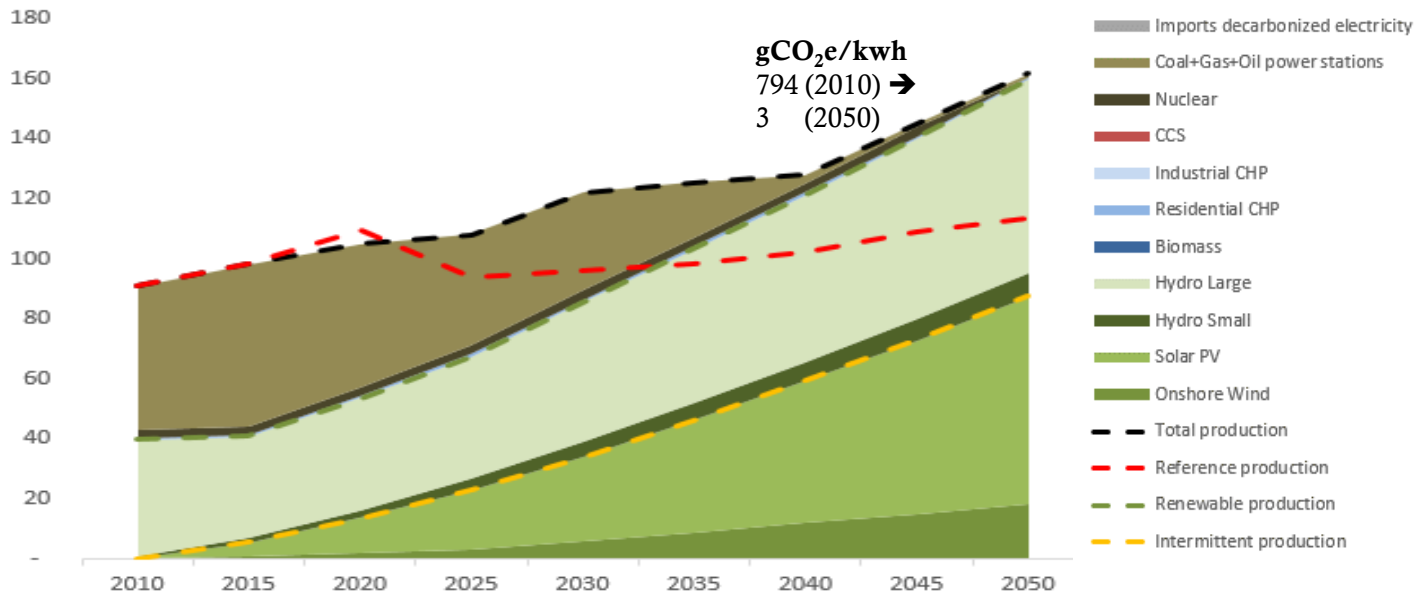
Department of Energy & Climate Change

OAK FOUNDATION

CLIMACT

Alternative RES becomes crucial component of any 2050 low carbon strategy

The Good News for Solar



SEE CHANGE NET

Thank you!

Garret Patrick Kelly
Garret@seechangenet.org

Principal
SEE Change Net Foundation

This project is funded by the European Union
Instrument for Pre-accession Assistance (IPA) Civil Society Facility (CSF)
The views expressed in this presentation do not necessarily reflect the views of the European Commission

SEE CHANGE NET