

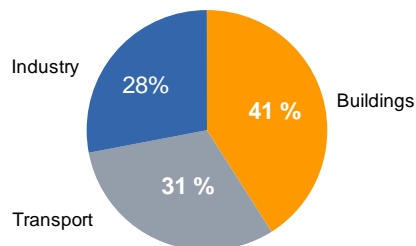
SIMPLE & COST EFFECTIVE SOLUTIONS TO INCREASE ENERGY EFFICIENCY IN BUILDINGS

**Presentation for the United Nations Economic Commission for
Europe, UNECE
October 9th 2013
Peter Spencer, President TA Hydronics SA.**

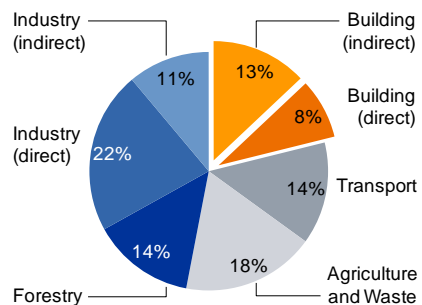
The Importance of Energy Efficient Buildings

- > 40 % of the world's energy is consumed in buildings*
- > 50% of this is in heating & cooling systems*
- > 21 % of the world's CO₂ emissions are from buildings
- > 80% of all buildings standing today will be here in 2050

Energy consumption



Mix of CO₂ emissions



(*) Sources: European Commission EPBD (point 6, pp1) & US Department of Energy's "Buildings Energy Data Book"

Global Targets

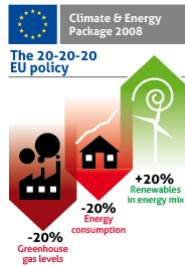
>1 Global objective:

Stabilization of greenhouse gas concentration in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.

>Series of specific goals committed to:



Kyoto December 2007



EU 20/20/20 Policy

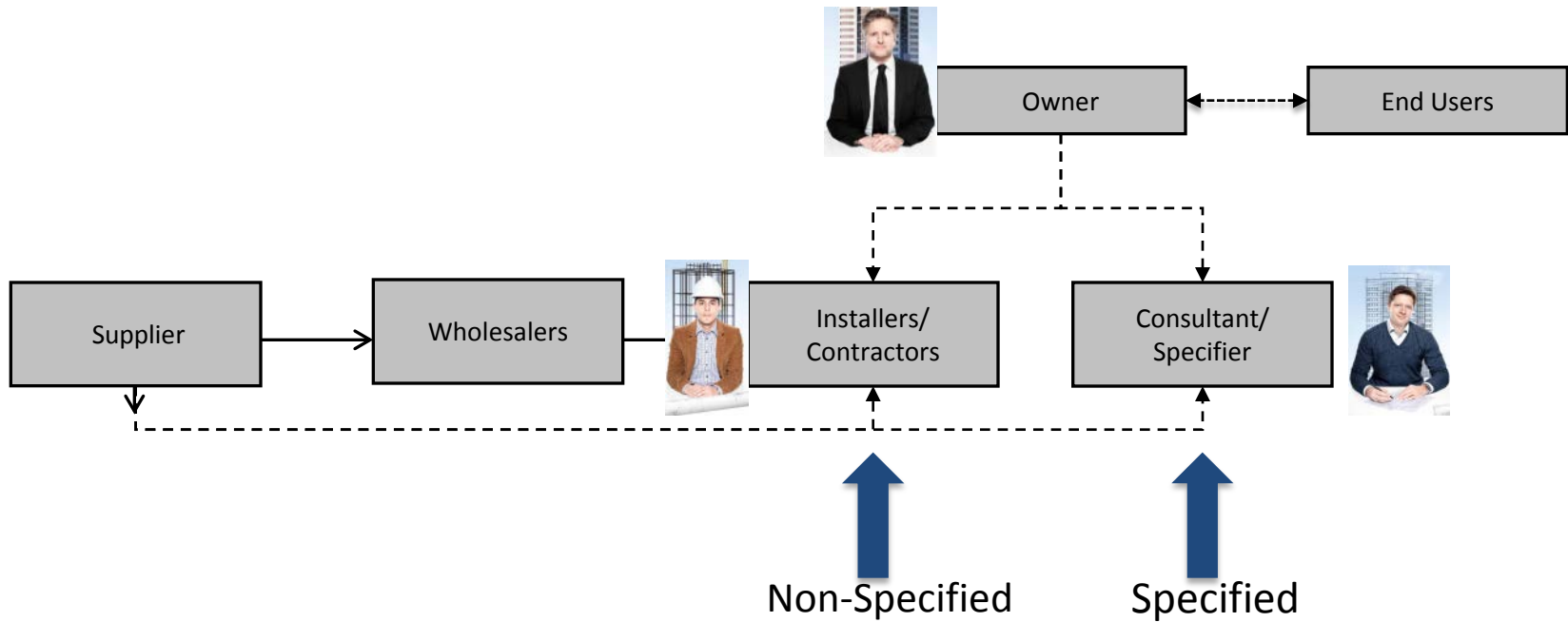


European paper 2030

>Defined measures:

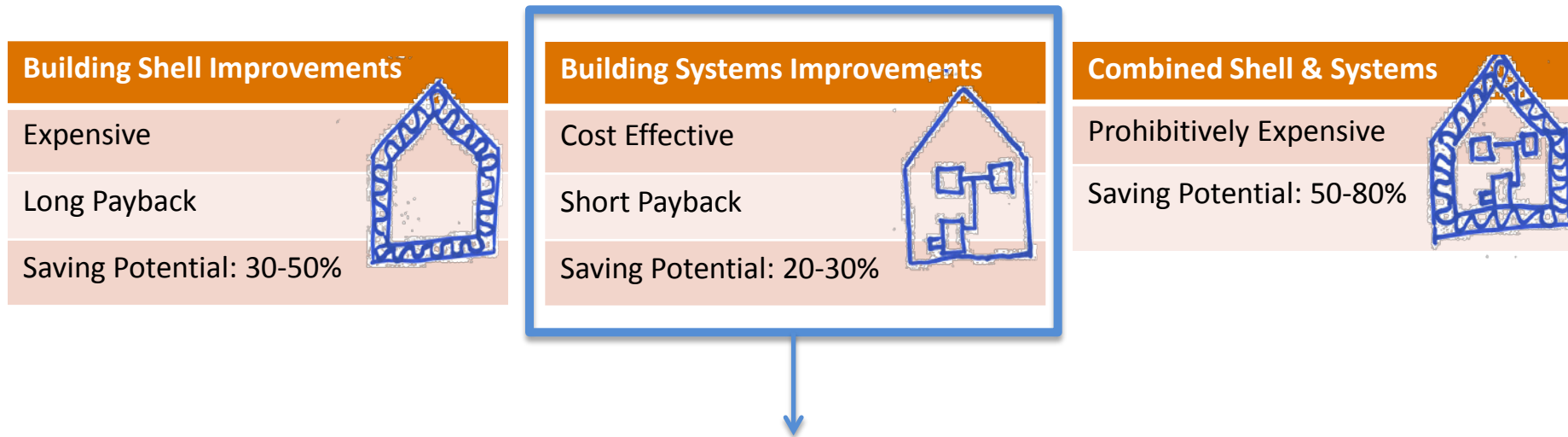
- > Reduction of greenhouse gas emissions
- > Increased energy supply from renewable sources
- > Increased energy efficiency

Buildings – The Stakeholders



Driving Energy Efficiency in Buildings:

>Measures for Improving Energy Efficiency in Buildings:



>Effective in terms of investment required, simplicity & payback time

>Solutions are simple and easy to implement

>80% of all buildings standing today will be here in 2050

Driving Energy Efficiency in Buildings

> Small things can make a BIG difference

The use of **thermostatic radiator valves** can provide energy savings of up to 28% compared to the use of manual valves*

> Consideration of a single Thermostatic control valve (vs manual valve)

- | | |
|-------------------------------------|---------------------------------|
| > Saving on consumption – oil (gas) | 70 litres (m ³) /yr |
| > Cost reduction | |
| > Payback | 1 year |
| > CO ₂ reduction | 168 kg /yr |



(* Source: University of Dresden Independent Study)

Driving Energy Efficiency in Buildings

>There are an estimated **600 million manual valves** still used in Europe today.

>Example Europe: converting all manual to thermostatic control valves

- > Saving on consumption – oil (gas) 42 billion litres (m³) /yr
- > Cost reduction 32 billion EUR /yr
- > Payback 1 year
- > CO2 reduction 100 million tons /yr

>This is an equivalent of **50 million cars** with an annual mileage of 15,000 km with CO2 emissions in average of 133 g/km.

Premise:

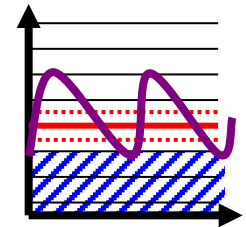
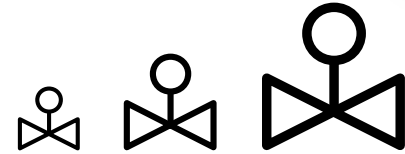
Specific energy consumption existing buildings 175 kWh/m²a, climate zone central Europe as an average for Europe, energy costs on average 0.75 EUR per litre oil and m³ gas, energy saving on average 20%, CO2 emission on average 0.24 kg/kWh for oil and gas, installed MRV's in Europe in residential and non residential sector 600 million units, costs for replacement MRV/TRV 56 EUR (material + time) based on 620 EUR for one-family-house with 11 radiators.

Driving Energy Efficiency in Buildings:

> The cost of discomfort

Well over 50% of all installed Balancing & Control Valves are incorrectly sized*

> Oversized valves lead to **unstable room temperature control**

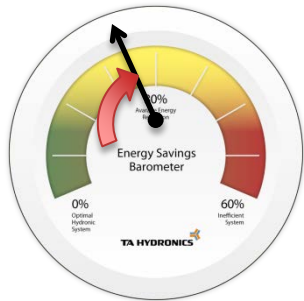


Heating

Cooling

6 to 11% #

The cost of **1°C too high** room temperature in winter



12 to 18% #

The cost of **1°C too low** room temperature in summer

(* Sources: Independent European HVAC industry surveys commissioned 2009-2013

(#) of the plant annual energy consumption

Make a Difference

- > Heating and cooling are essential to our future lifestyle
- > All building stakeholders need to follow the 'energy agenda'
- > Refurbishment will have the biggest impact
- > Straightforward HVAC measures using existing solutions will move countries to meet the commitments of the 'Energy Agenda'

Thank You for Your Attention!

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