

A faint, light-colored architectural floor plan is visible in the background of the slide, showing various rooms and structural lines.

Combined solar and HP systems respond to policy goals and can appeal to end user

Krystyna Dawson

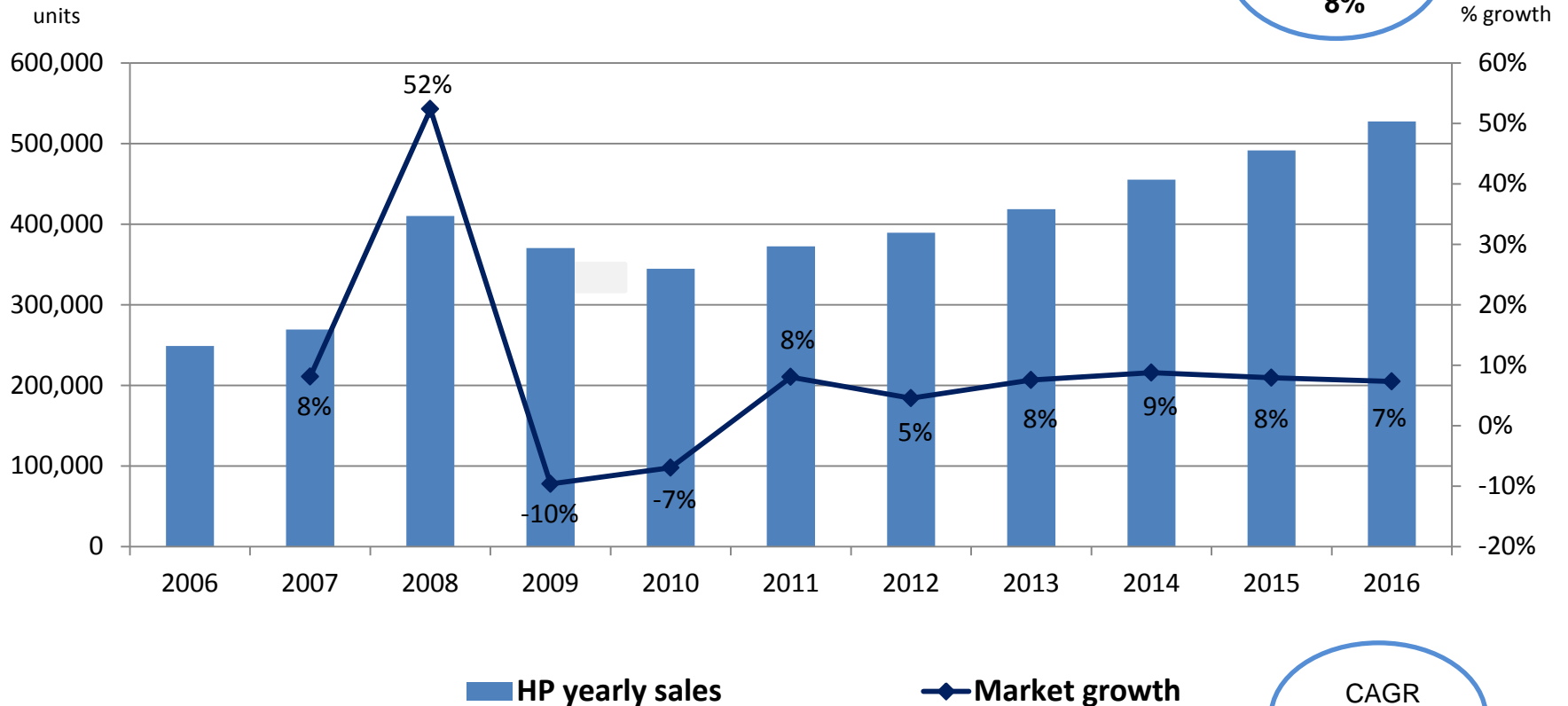
Business manager WMI



- Sales of hydronic heat pumps in Europe and the shift towards DHW HPs
- Decarbonised electricity is both: advantage and obstacle for HPs
- Combined solar and HP systems can help reduce CO2 emissions in existing homes
- Support needed to maintain the value proposition of combined systems in the long term
- Technology development and policy making need to meet with end user acceptance to propel heat pumps to the main stream

Heat pumps historic growth in Europe

Sales of hydronic heat pumps Europe, units, 2006 – 2016



Source: BSRIA based on data from 21 European countries

Legislative push meets consumer resistance

European Legislation



europa.eu

National Building Regulations



Incentive programs



Electricity Rates Increase



Uneven growth in energy prices

Electricity price between 2006 and 2016



Up 47%



Up 41%

Gas price between 2006 and 2016



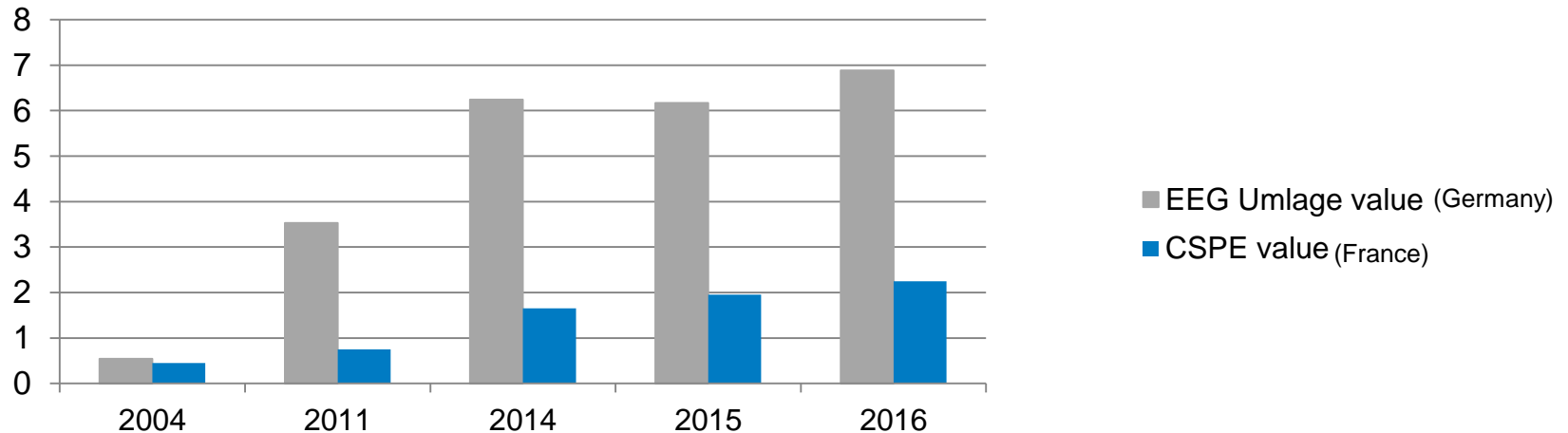
Up 10%



Up 3%

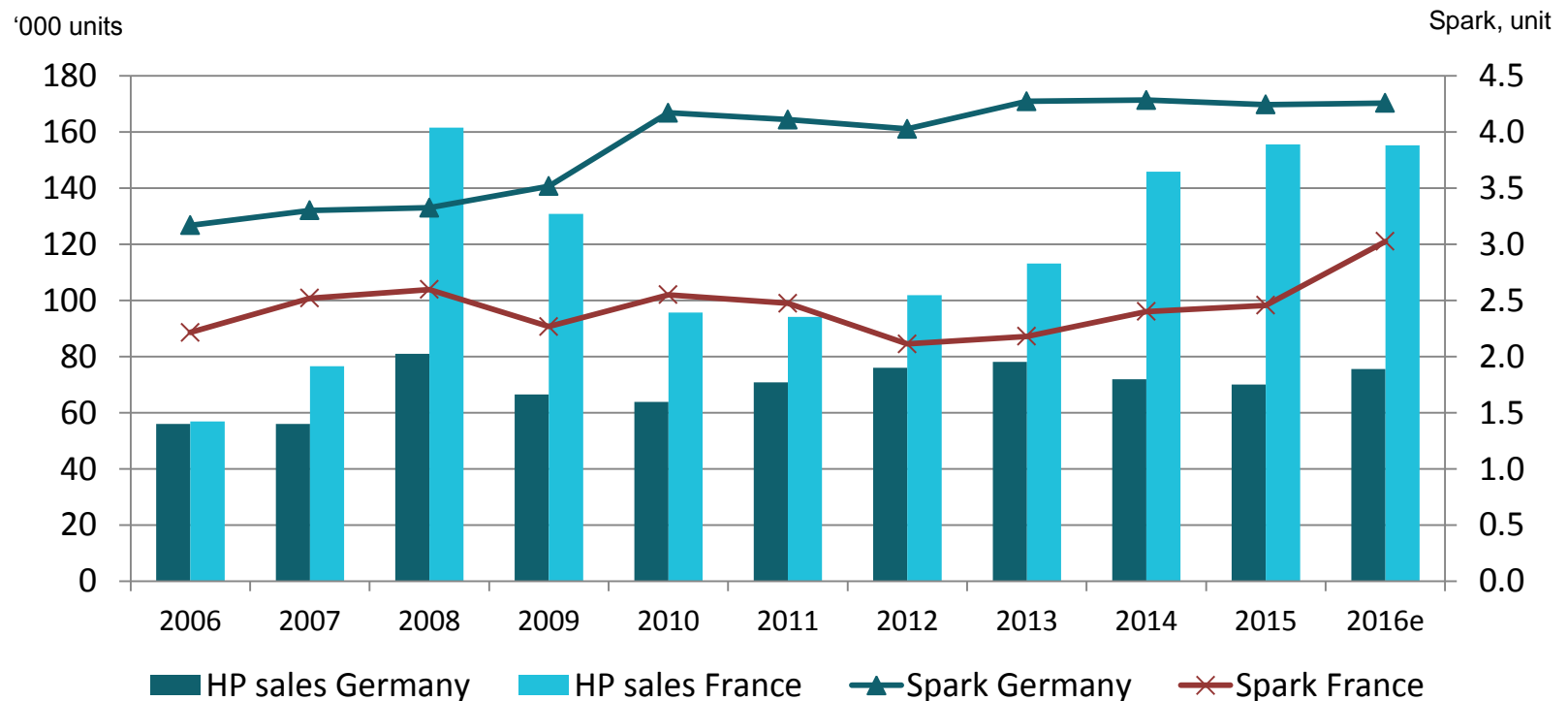
Special tax on electricity in Germany and France

€cent /
kWh



Increasing energy prices impact HP sales

Sales of hydronic heat pumps in Germany and France against the electricity / gas price ratio, units, 2006 – 2016

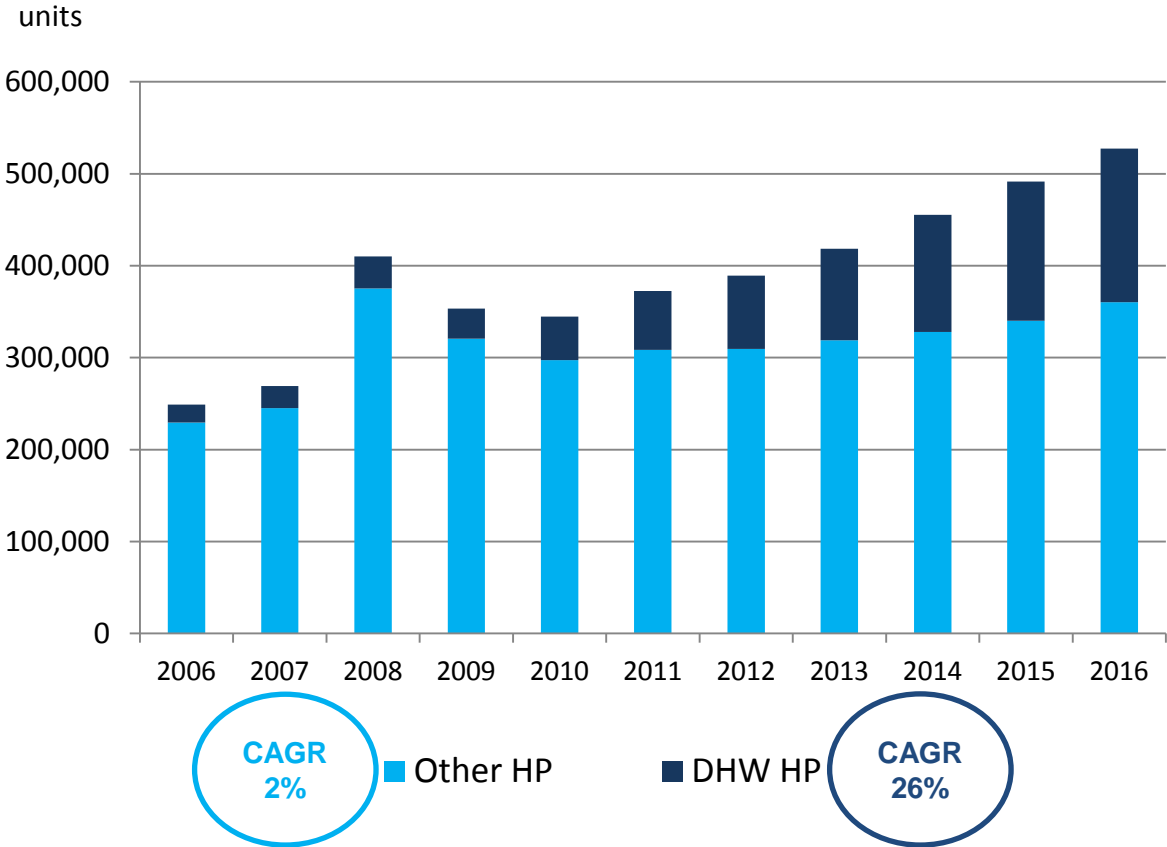


Source: BSRIA based on data from 21 European countries

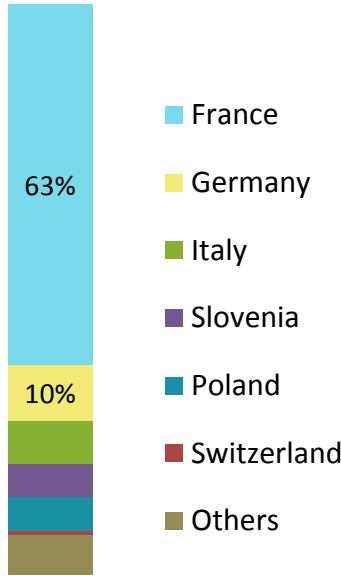
Spark = ratio between the price of electricity and gas for residential end user

Slow progression of heating HPs

Growth of hydronic HPs in Europe and share of DHP Heat Pumps, 2009 - 2016



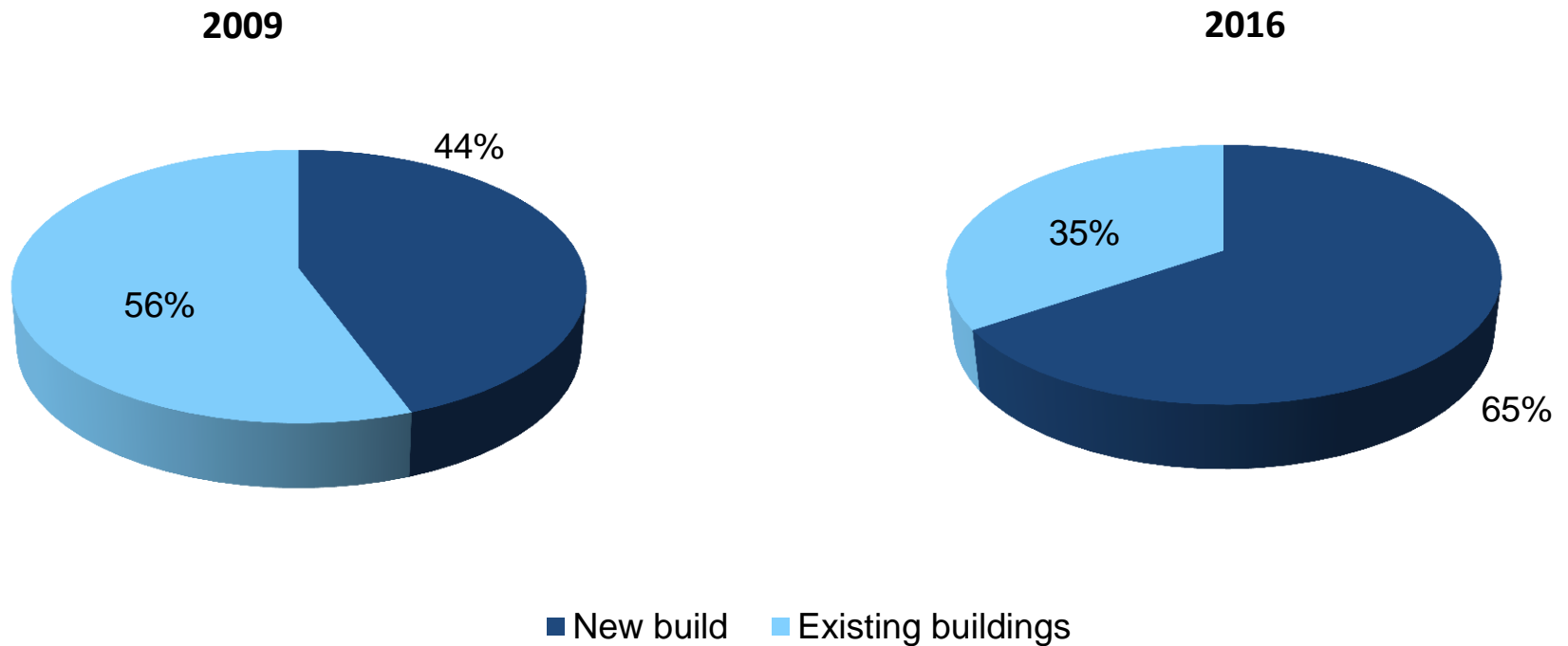
2016 split by countries



Source: BSRIA based on data from 21 European countries

Installations in new buildings dominate today

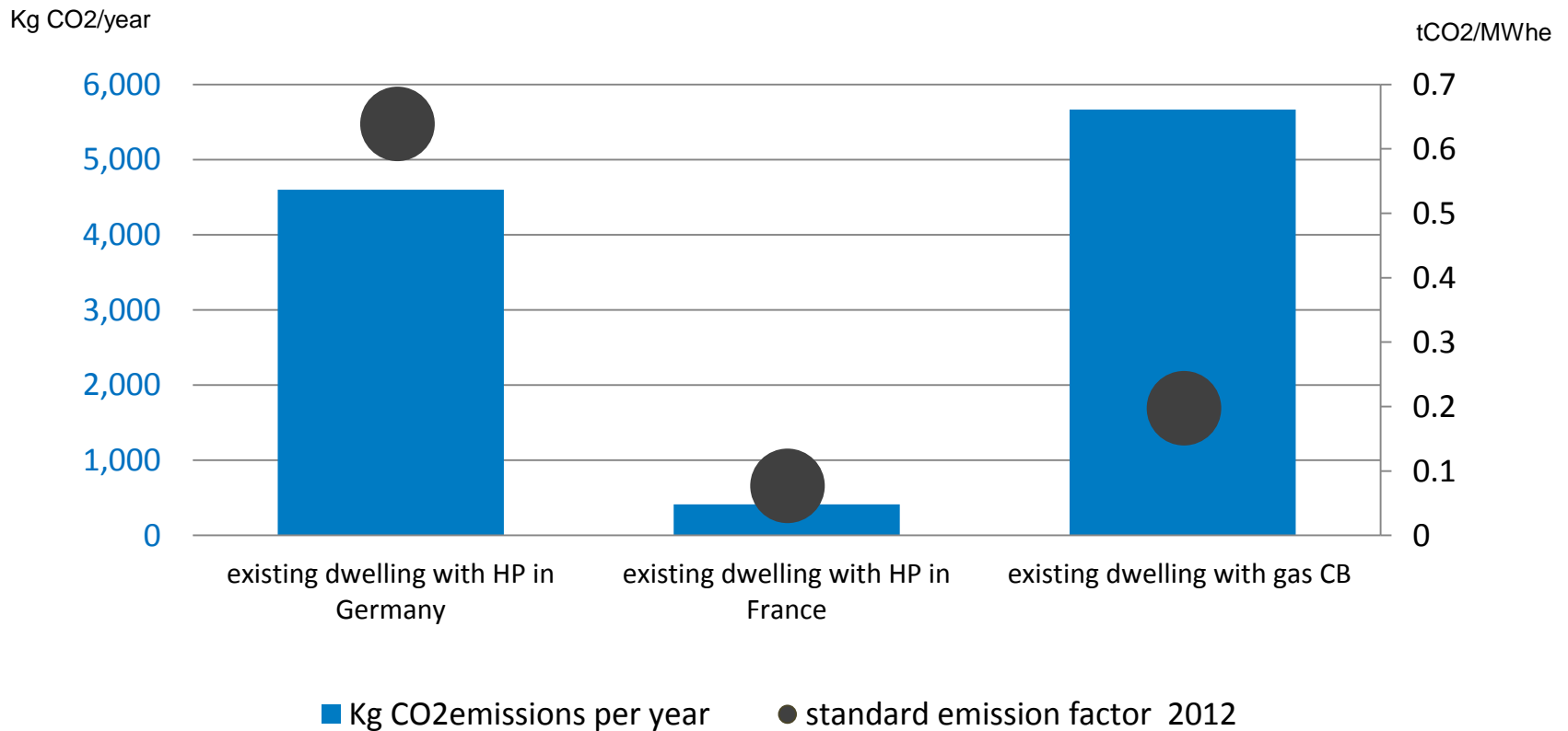
Share of HP installations in New and Existing buildings in Europe



Source: BSRIA based on data from 21 European countries

Decarbonised electricity gives HP advantage

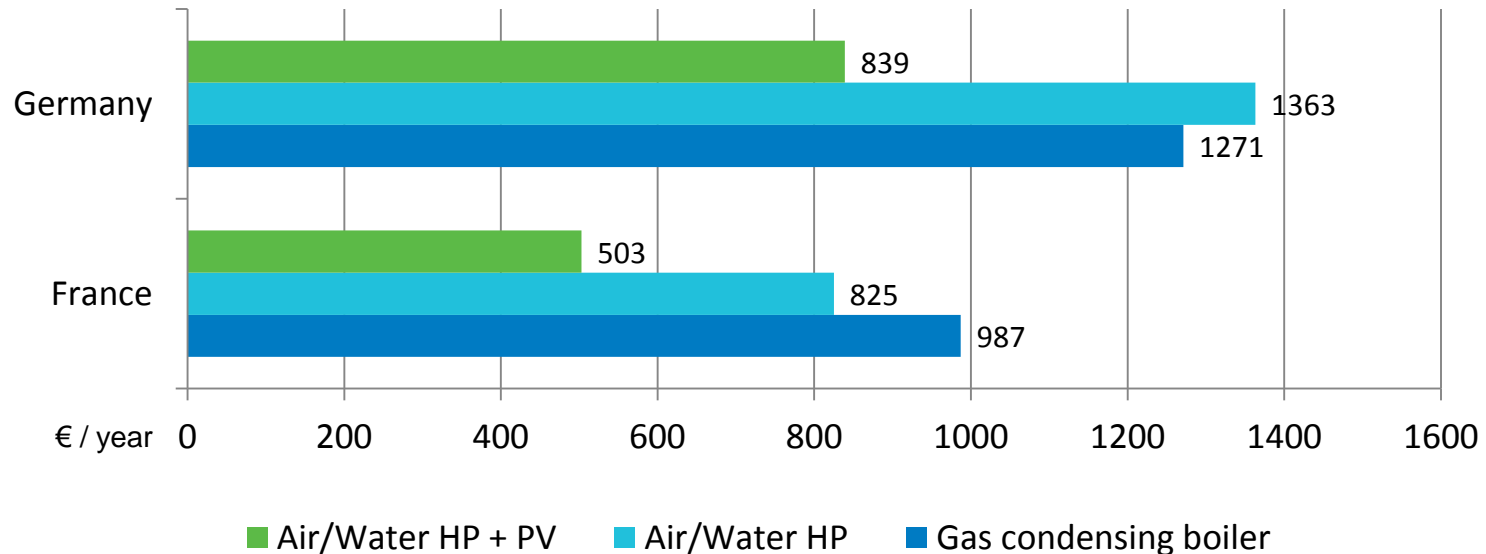
Level of CO₂ emissions for households fitted with either A/W heat pump or gas condensing boiler in Germany and France



Source: BSRIA

Combined HP and PV installation lowers the energy cost for consumer

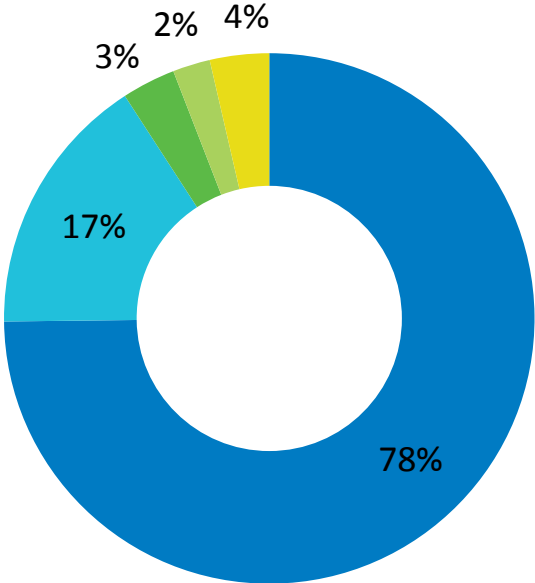
Yearly energy cost for a dwelling with Air to Water HP stand alone and combined with PV system (existing dwellings, € / year)



Source: BSRIA

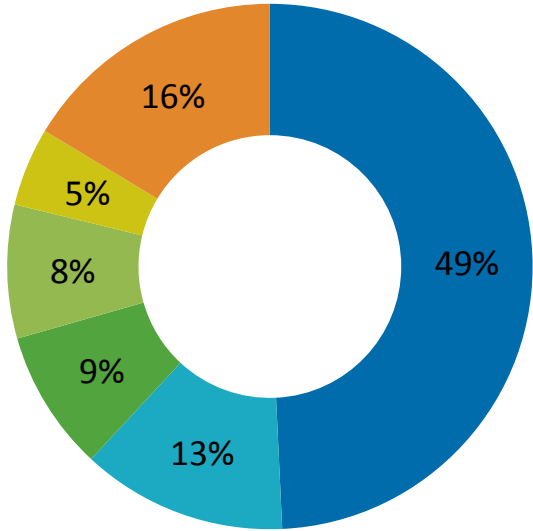
Combined HP and PV installation substantial in markets where spark is high

European HP market by type of installation, 2016



- Standalone installation
- Installed with fossil fuel boiler
- Installed with solar thermals
- Installed with biomass (boilers/ stoves)
- Installed with solar photovoltaic

Most important markets for combined HP/PV installations, 2016



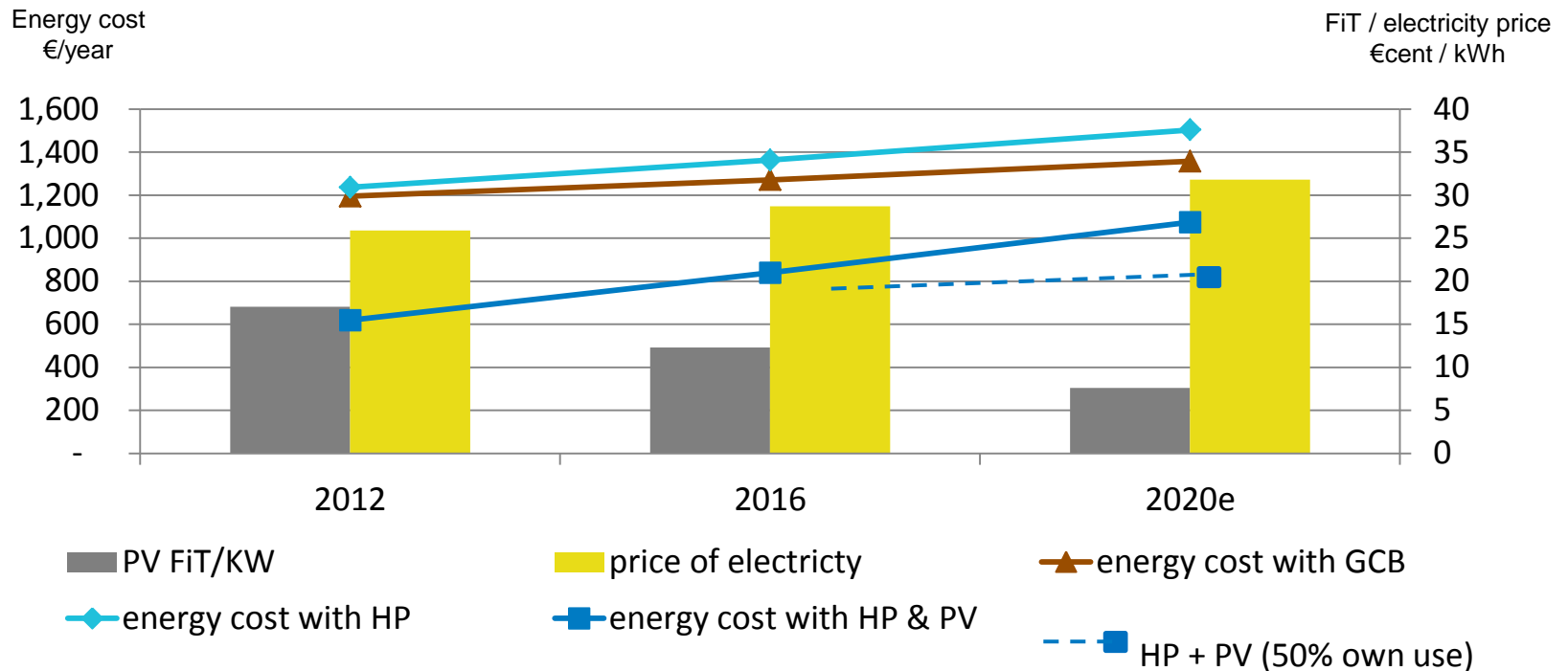
- Germany
- Italy
- Austria
- France
- Belgium
- Others

Source: BSRIA based on data from 21 European countries
 Spark = ratio between the price of electricity and gas for residential end user

Total number of combined HP/PV systems: ~ 21,000

Reinforced value proposition is needed for the future

Projected energy cost for a dwelling with heat pump in relation to electricity price and FiT* GERMANY



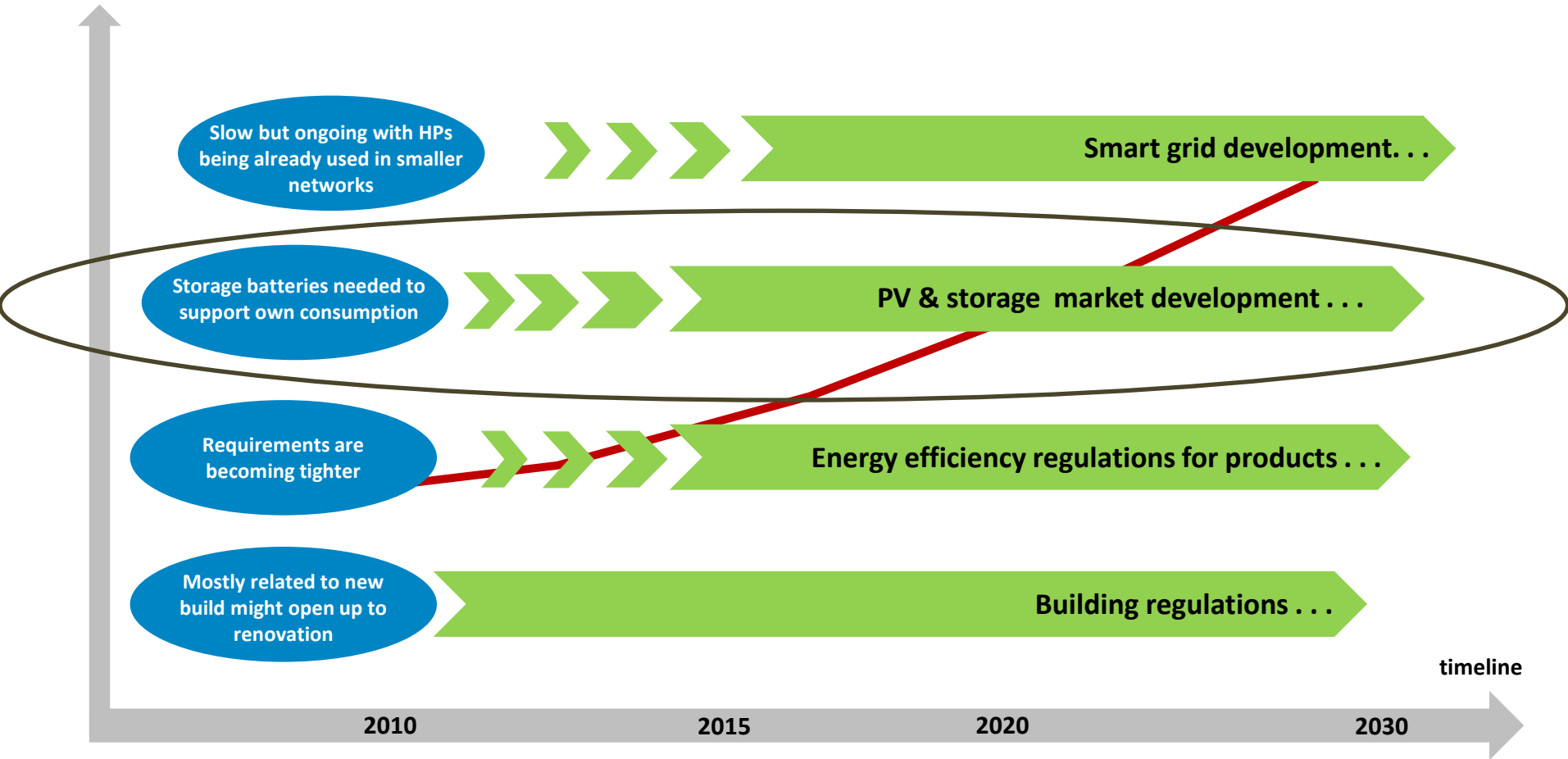
* FiT = feed-in-tariff
 HP COP 3.5
 Own use of generated electricity; 35%

Electricity price CAGR: 2.6%
 Gas price CAGR: 1.2%*

Source: BSRIA based on data from 21 European countries

Long term market drivers for Heat Pumps

market size



Source: BSRIA

- Heat pumps are growing but need stronger value proposition for end user to become real mainstream
- ***Is it enough to rejoice on growth of domestic hot water heat pumps only?***
- Combined HP and solar installations are attractive as low energy cost system and as a low carbon solution
- ***Is it enough to relay on legislation and government fiscal incentives to develop this market further?***
- Increased self consumption will support progress of combined HP/PV systems
- ***Is it possible to match consumer interests with those of energy providers?***

Thank you



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