



## French activities on gas heat pumps

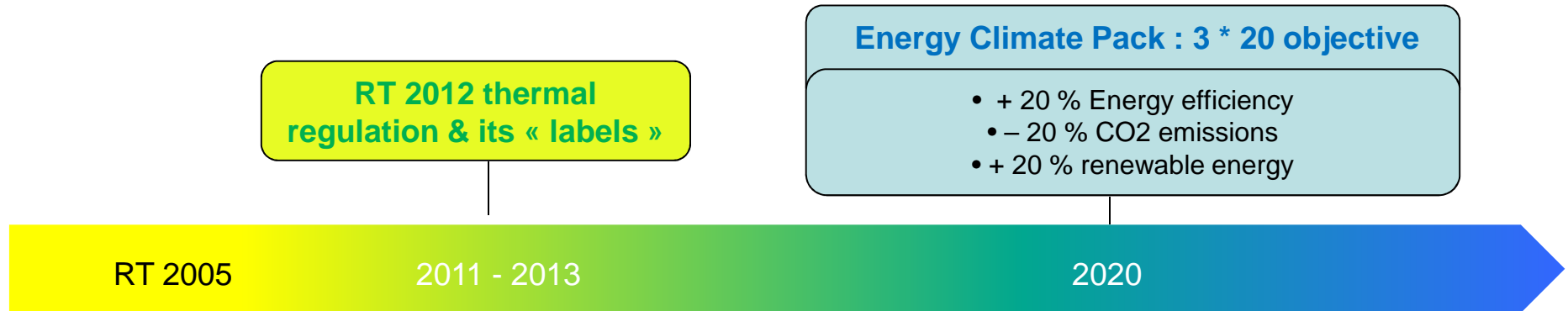
**Gas Heat Pump Workshop  
December 2. 2011**





# Energy consumption in building : a reinforced regulatory context

-> Strong efforts required in the short and medium run



- Evolving building needs
  - Heating
  - Cooling
  - Sanitary Hot water
  - ....
- New constraints
  - Primary Energy Consumption
  - RES integration
  - CO2 emissions
  - ...

**Energy Climate Pack : 3 \* 20 objective**

- + 20 % Energy efficiency
- - 20 % CO2 emissions
- + 20 % renewable energy

**« Grenelle de l'environnement »**

Zero energy buildings (BEPOS)  
-38 % energy consumption in existing buildings

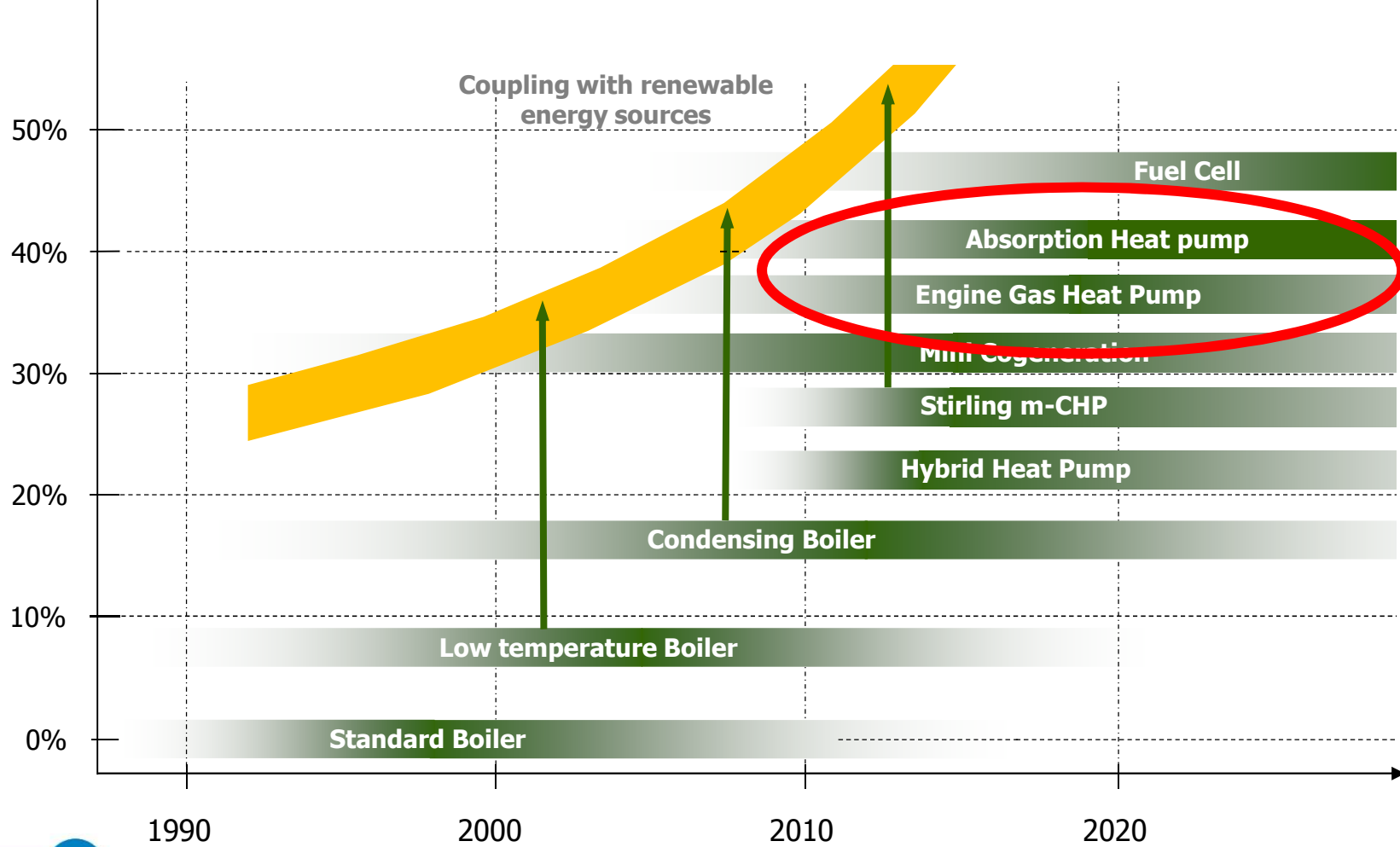
- And still demanding clients expectations
  - Low investment & oprational costs
  - Confort in all seasons
  - Low noise
  - Space savings
  - Simplicity to install and use
  - ....



# A portfolio of gas technologies to address this challenge



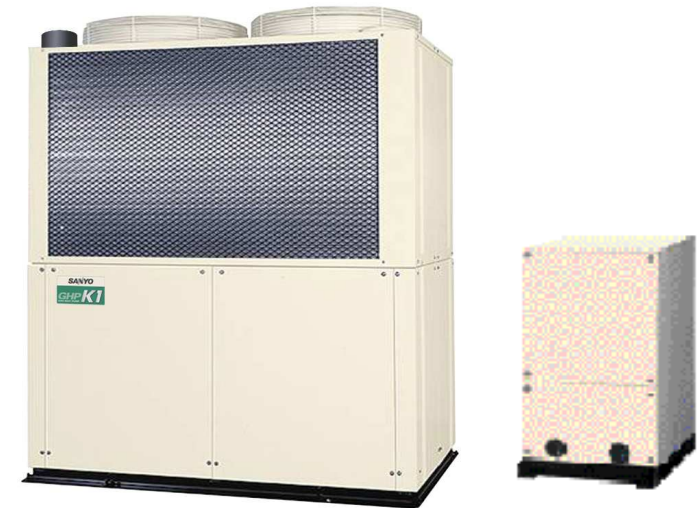
**Primary energy savings compared to a standard boiler**



# Markets for Gas Heat pumps in France (1/2)

## Engine Gas Heat Pumps

- **Key assets :**
  - Very efficient solution for cooling and heating
  - Global performance even increased when hot water is produced from engine heat
  - Recognized as a renewable energy source
  - A brand range of terminal units, in direct expansion or water, allowing to adapt to various clients expectations
  
- **Some drawbacks :** Still high investment costs, high operational costs during summer (French context of electric tariff)
  
- **Targeted markets:** Commercial buildings with heating and cooling needs (possibly lower), ideally with hot water needs
  - Health facilities (small hospitals, clinics, Retirement houses)
  - Hotels
  - Office buildings, stores, supermarkets (low penetration rate but high number of projects)



## Markets for Gas Heat pumps in France (2/2)

### Gas Absorption Heat Pumps

- **Key assets :**
  - An ultra efficient solution for heating and hot water production, with a high renewable energy share
  - Cooling possibility, but with lower capacity and efficiency
  - « The » gas solution to value waste heat or achieve innovative couplings :
    - Extracted air from ventilation system or waste water in a multi family house
    - Waste water or ground water heat recovery at the district level
- **Some drawbacks :** Specificity of heat pump operation and hydraulic schemes not well mastered by heating room installers
- **Targeted markets:**
  - New multi family houses (or refurbishment), with an objective in terms of performance or RES integration: private building companies or social housing
  - Commercial buildings with low or no cooling needs: schools and universities, retirement houses, nursing homes...
  - Geothermal projects and green neighborhoods





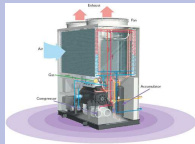
# CRIGEN - GrDF past activities on gas heat pumps

## Technical / regulation aspects



### Technical validation

*Gdf SUEZ CRIGEN lab tests and CETIAT lab tests*



### Field tests

*For GAHP and Engine GHP with ADEME*

### Installation and maintenance rules

*Evolution of the french requirements and rules for installation and maintenance*

### Integration in thermal performance regulation

*(french thermal regulation, ErP directive)*

### Guides and trainings

*(hydraulic technical schemes, COSTIC training session)*

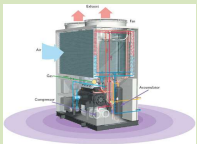
2008

2009

2010

2011

2012



### Organisation of the distribution network

*Engine GHP: Aisin, Sanyo*

### First commercial references

### Commercial promotion

*(designers & installers animation, communication and sales tools... )*



### Organisation of the distribution Network

*(For GAHP: ID THERM, France Air)*

### First commercial references

### New distribution partners

*(For GAHP: De Dietrich, Buderus) r*

## Commercial and promotion aspects



## Stage of introduction on the French market

### Engine GHP

- Technology available in France since 2007
  - Sanyo distributed by its established distribution network
  - AISIN today working with local installers
- A market that has been slow to take off, because of a lack of recognition and a difficult economic equation
- Some signs of improvement in sales, yet still requiring a strong prescription effort : ~100 units sold in 2011
- Sales perspective between 200 and 1000 units / year on the medium run

### GAHP

- The product has been distributed in France since early 2008
  - Initially only through local installers
  - Since 2009 with 2 distributors under the Robur Brand (ID Therm and France air)
  - In addition in 2011, through OEM agreement with 2 major manufacturer (De Dietrich and Buderus)
- A slow start due to the lack of distribution network: 40 units installed by 2010
- Take off in 2011 : 150 units sold
- Sales perspectives between 1000 and 3000 units/ year on the medium run
- Equal penetration in residential and commercial applications



# CRIGEN– GrDF activities in progress...

## Technical / Regulation

### R&D

- Work in progress on systems coupling (waste water, ventilation system)
- Enlarge the range of the products, especially towards low power (adapted for individual houses) : work on 18 kW project

### Technical labels / regulation

- To certify efficiency values of the products: work in progress to adapt measurement standards and to integrate products into the French label NFPAC
- Integration into the Thermal French regulation RT 2012
- Encourage safety/security aspects

## Commercial / Promotion

- Keep on the technical support for distributions partners, designers and installers, for a good management of the products specificities...
- Train and release technical guides for designers and installers
- Reinforce communication actions

