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Report SG 5.2 Gas Utilisations domestic & commercial



Gas Utilisations

WOC5 SG 5.2 Domestic & Commercial

Natural Gas in the house of tomorrow:
prospects, expectation, barriers

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Jean Schweitzer





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SG5.2 Acknowledgements



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1 Situation of NG utilisation in the world. Share of NG in world energy consumption

2 Technology state of the art (existing and emerging)

3 Overall market situation

4 Perspectives for gas utilisations, how to keep the gas in the house?

Round Table



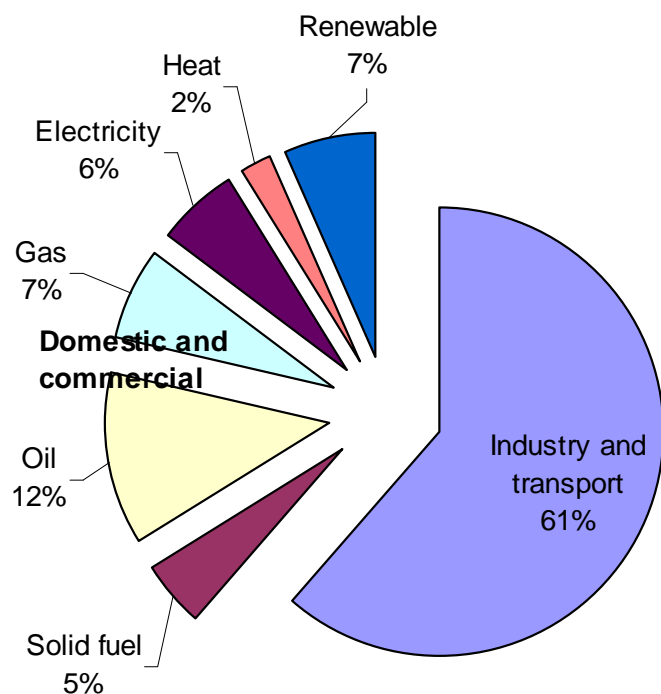


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Total gross energy consumption (World-wide)



**Share of use of NG for
domestic & commercial =
About 10 % of world energy
consumption**



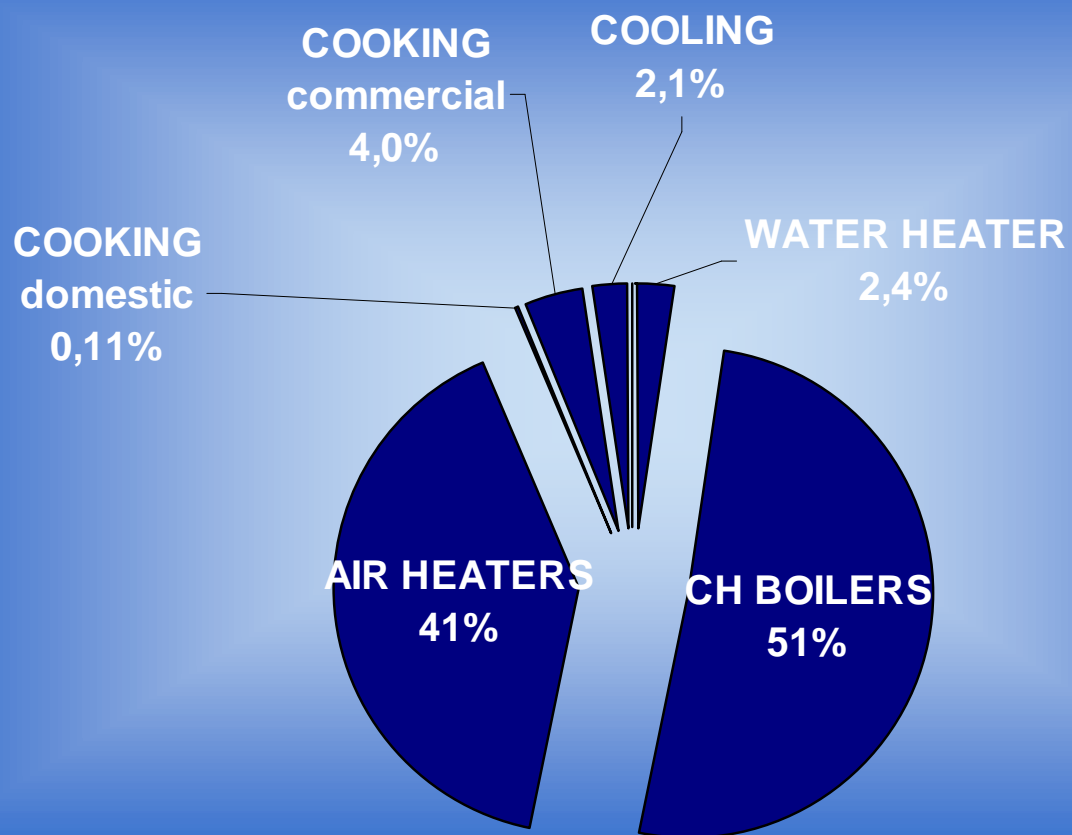


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Share of gas consumption by application





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STATE OF THE ART (existing appliances)

Heating & hot water production

- **High efficiency**
- **Low emissions**

Cooking

- **Commercial cooking potential**
- **IAQ**
- **Cleaning**

Cooling

- **GHP ready**
- **Investment/cost**





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STATE OF THE ART (New Technologies)

- CHP with gas engines: almost ready**
- Fuel cells: not ready**





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OVERALL SITUATION Domestic

- **Decrease in heat demand: investment cost**
- **New technology not yet ready and maybe not competitive**
- **Decrease in R&D**
- > **Risk for NG in the domestic sector**

OVERALL SITUATION Commercial

- **Decrease in heat demand is less a problem**
- **Opportunities both for existing technologies (eg. cooking) and new technologies & functions (cooling)**





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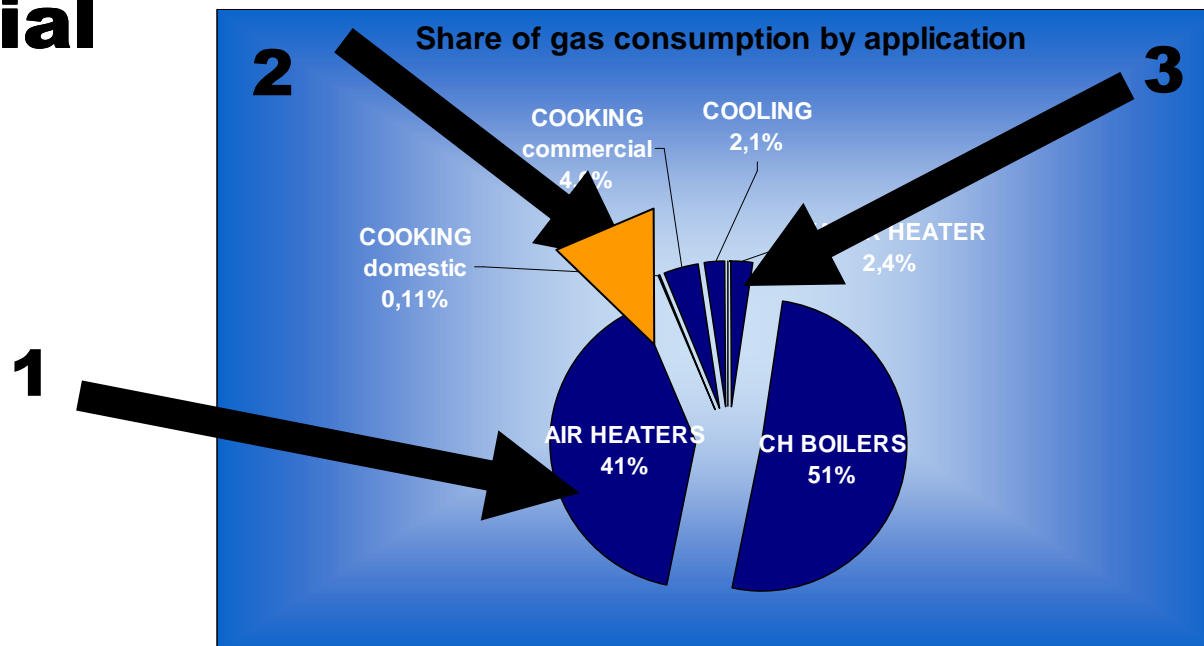
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How to keep the gas in the house?

- 1- Securing that gas is used for heating
- 2- Finding new forms of gas utilisation
- 3- Expanding the market where there is potential





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1- Securing that gas is used for heating

→ **New appliances for heating (appliances doing more than just heating)**

→ **CHP**

→ **Heat pumps**

→ **New systems**

→ **Gas + solar**

→ **Energy service**





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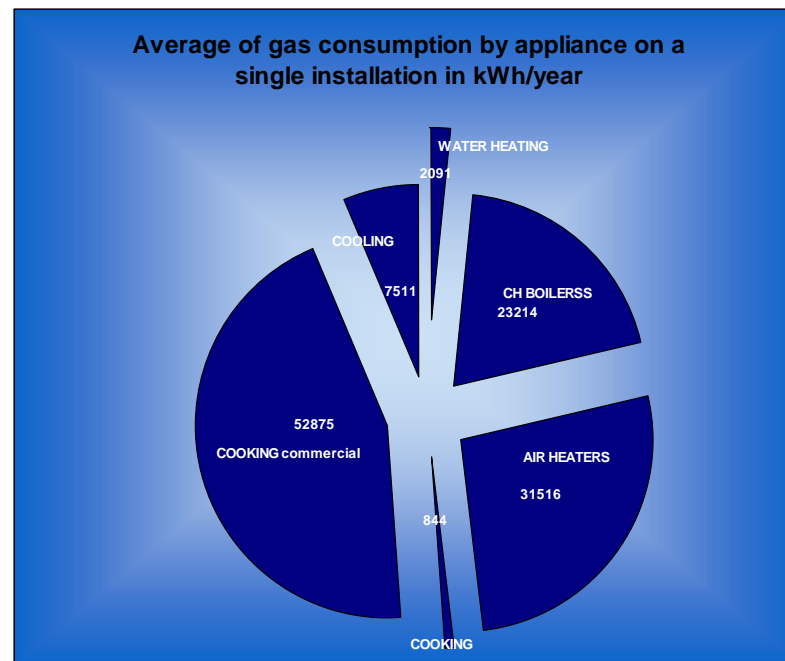


2- Finding new forms of gas utilisation

- Garden application (grill, patio heaters, light)
- Home fuelling (car)
- Cooling

3- Expanding the market where there is potential

Impact of commercial cooking





THE FUTURE



3 models





THE FUTURE? (1) all gas

-House with as many NG appliances as possible



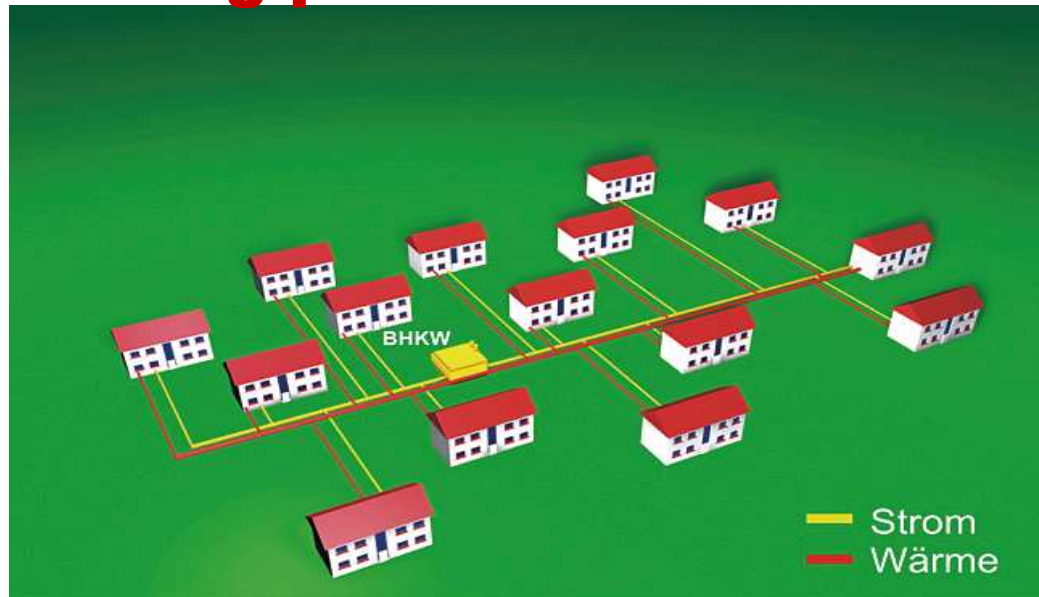
All gas (heating, hot water, cooking, cooling, washing, drying, garden, home fuelling, power gen.) + solar



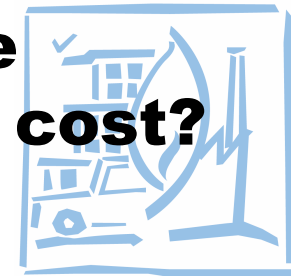
Why not, if very cheap, smart, efficient and compact!



THE FUTURE? 2 - Energy service: Heat, el, and cooling provided to the customer (mini grid)



- **No appliances in the house**
- **Purchase & maintenance cost reduction**
- **New technologies integration**
- **Combination with renewable**
- **Network cost?**





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THE FUTURE? 3 - No gas. Only electrical appliances in the house



**Heat pump / Radiator / Convactor/
Water heater / Cooker / Drying
machine / Wash machine/ Light /
El. car ..**

Lets be provocative:

**Is this really a problem for
the gas industry?**





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Gas industry can concentrate on producing electricity with gas in large units...

.... and is free of activity related to gas appliances (research & certification etc.)



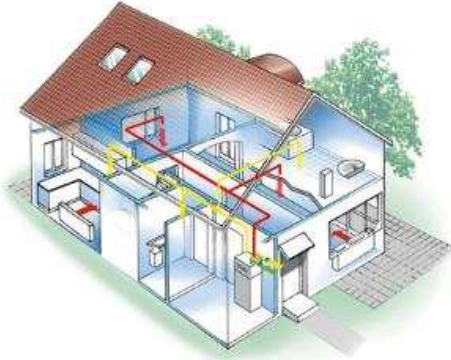


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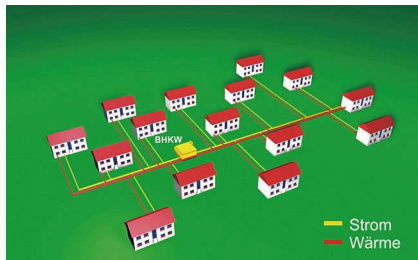
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CONCLUSION THE FUTURE? A mix



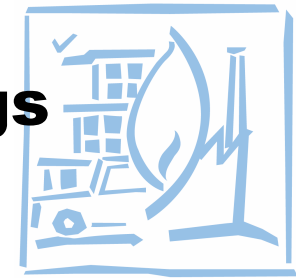
No gas /all el: very low energy houses



Energy service: commercial sector, dense areas



All gas: existing buildings





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In any case:

Still need for new technologies and so:

- R&D**
- Demonstration**
- Field test**

→ so a strong commitment of the gas industry

LET's TALK ABOUT IT!

Round Table

Thank you for your attention!

