

# Cogeneration and District Energy

*Sustainable energy for today  
...and tomorrow*

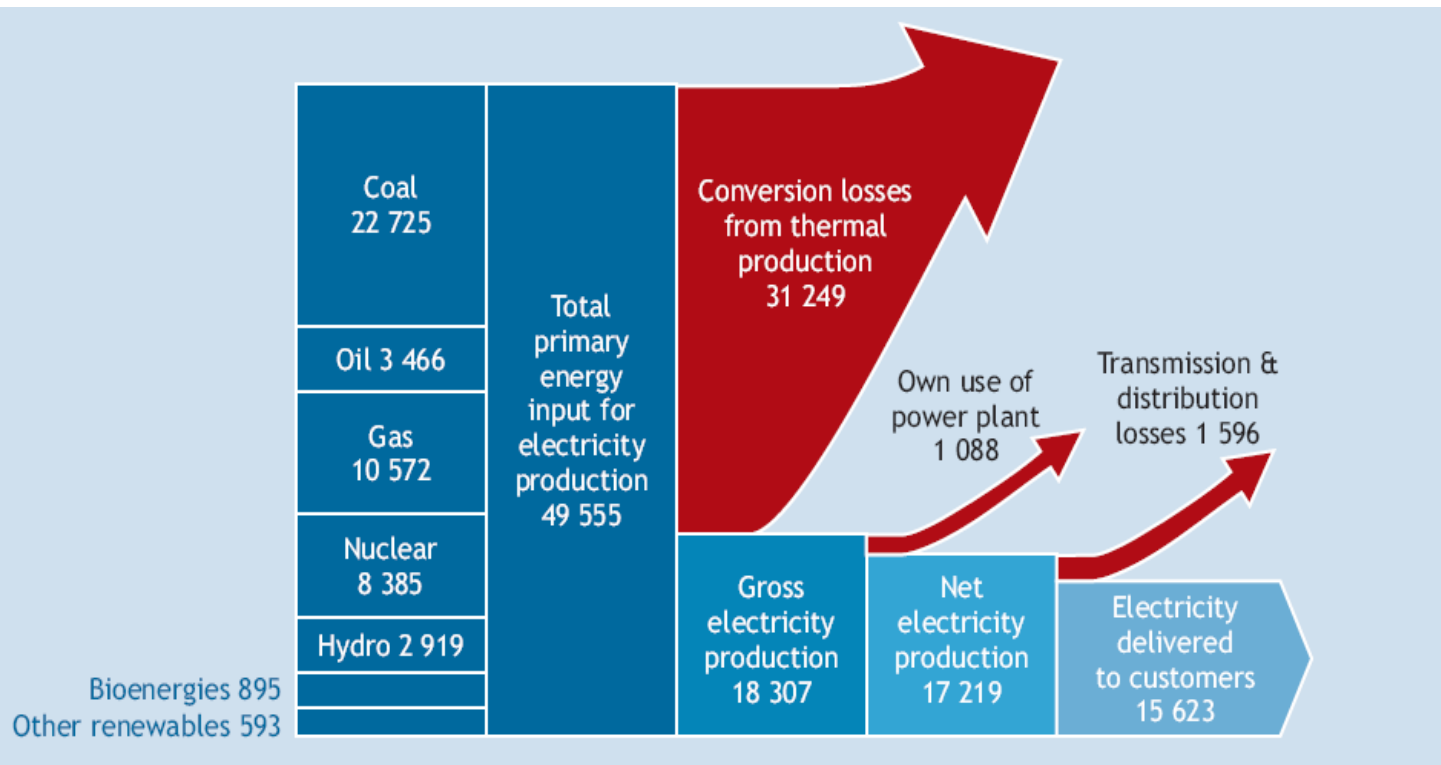
**Tom Kerr**

**COGEN Europe Annual Meeting  
21 April 2009**



# Energy Supply Inefficiency Is a Huge Opportunity

## Energy Flows in the Global Electricity System



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Sustainable energy  
technologies  
for today  
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Source: IEA, *CHP: Evaluating the Benefits of Greater Global Investment* (2008).

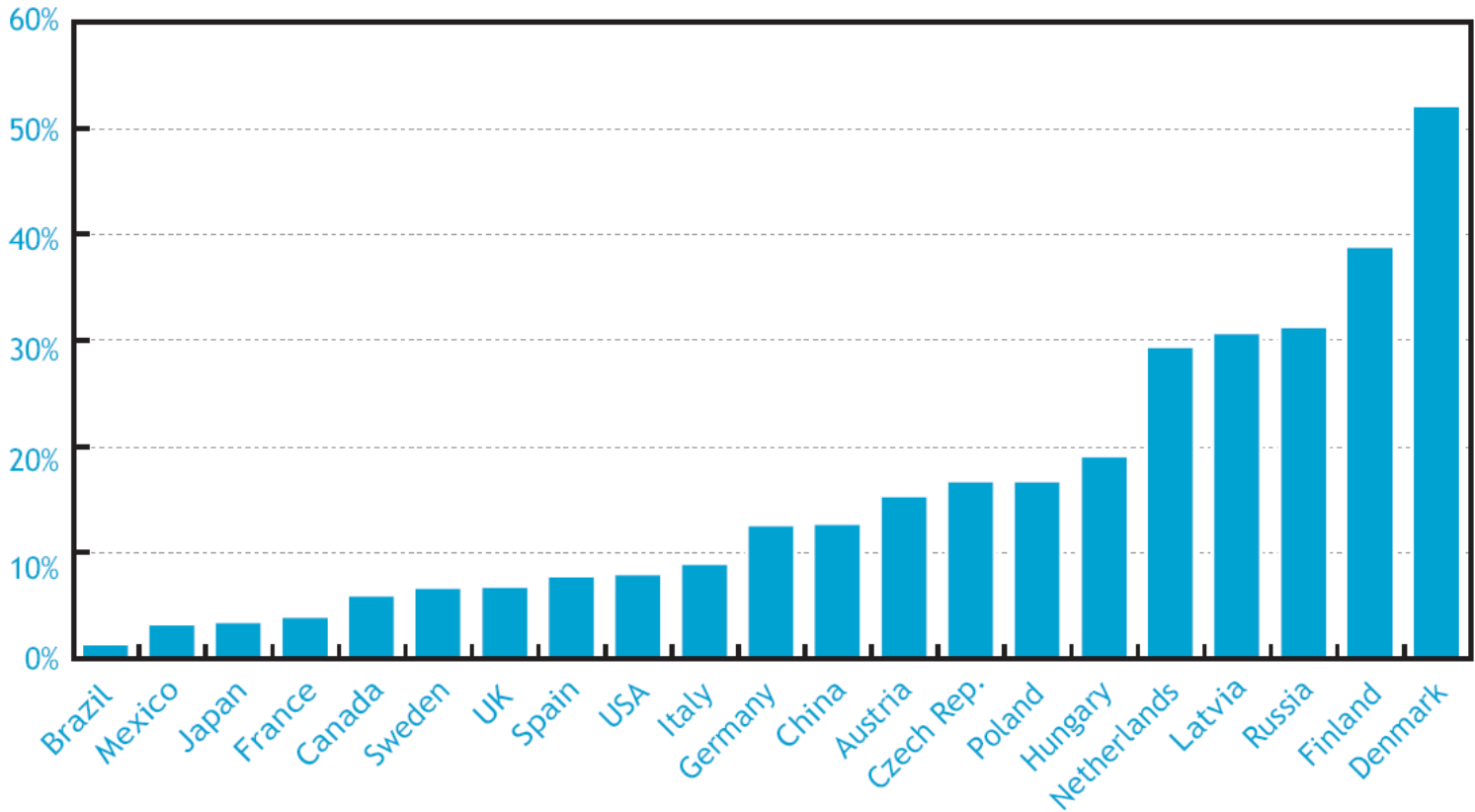
***2/3 of the fuel we use to produce power is wasted --  
CHP can more than double this efficiency***

# CHP Generates just 9% of Global Electricity

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## CHP Share of National Power Production



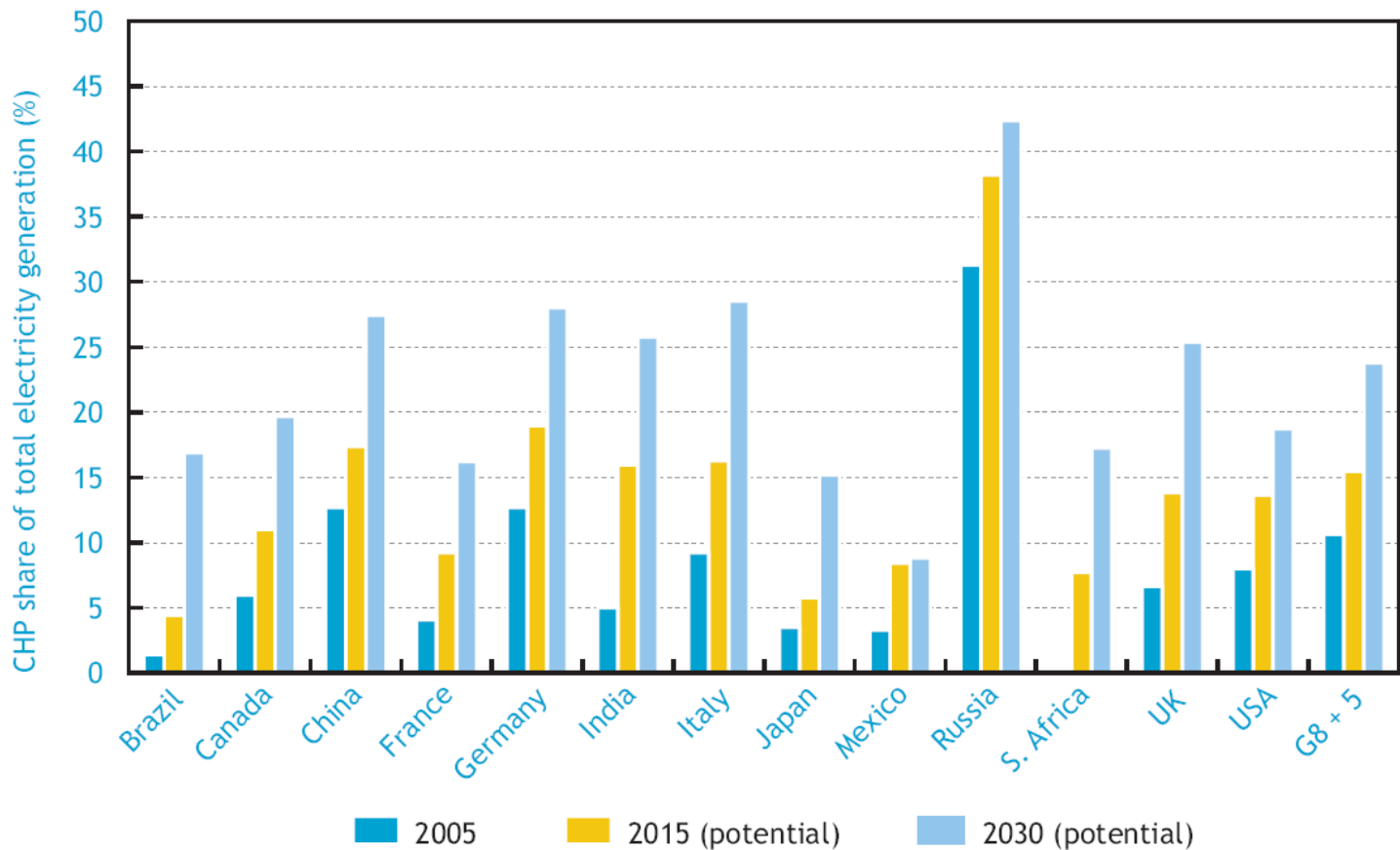
Source: IEA, *CHP: Evaluating the Benefits of Greater Global Investment* (2008)

# There Is Significant Additional Potential

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## CHP Potentials -- Accelerated CHP Scenario



Source: IEA, *CHP: Evaluating the Benefits of Greater Global Investment* (2008)

## ...So Why Are We at 9%?

- Lack of information about cost savings, environmental benefits
- Difficulties connecting CHP to the electricity grid
- CHP/DHC benefits difficult to recognize in GHG regulation
- Lack of strategic heat resource planning

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*Government champions needed*

# Targeted Policies Needed

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**Good practice policies have  
successfully addressed barriers**

- **Utility supply obligations**
- **Local infrastructure and heat planning**
- **Addressing CHP/DHC in GHG emissions trading**
- **Interconnection measures**
- **Strategic government efforts**

# Best Practice Policies

## ○ Policy case studies

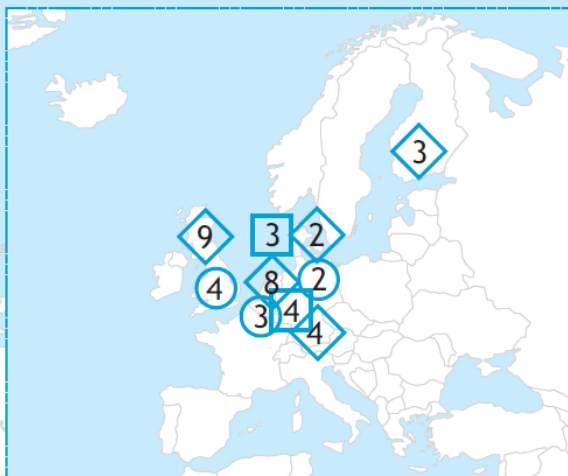
1. System benefit charge - New York State, USA
2. Erneuerbaren-Energien-Gasetz - Germany
3. Green certificate scheme - Wallonia, Belgium
4. Merton rule - United Kingdom
5. EU emissions trading scheme - EU
6. US interconnection standards - USA
7. PE fuel cell roadmap - Japan

## ◇ Country scorecards

1. China
2. Denmark
3. Finland
4. Germany
5. India
6. Japan
7. Korea
8. Netherlands
9. United Kingdom
10. USA

## □ CHP strategies

1. CHP roadmap - USA
2. CHP directive - EU
3. Heat planning policy - Denmark
4. Municipal CHP strategy - Frankfurt am Main, Germany
5. District heating planning and municipal policy - South Korea

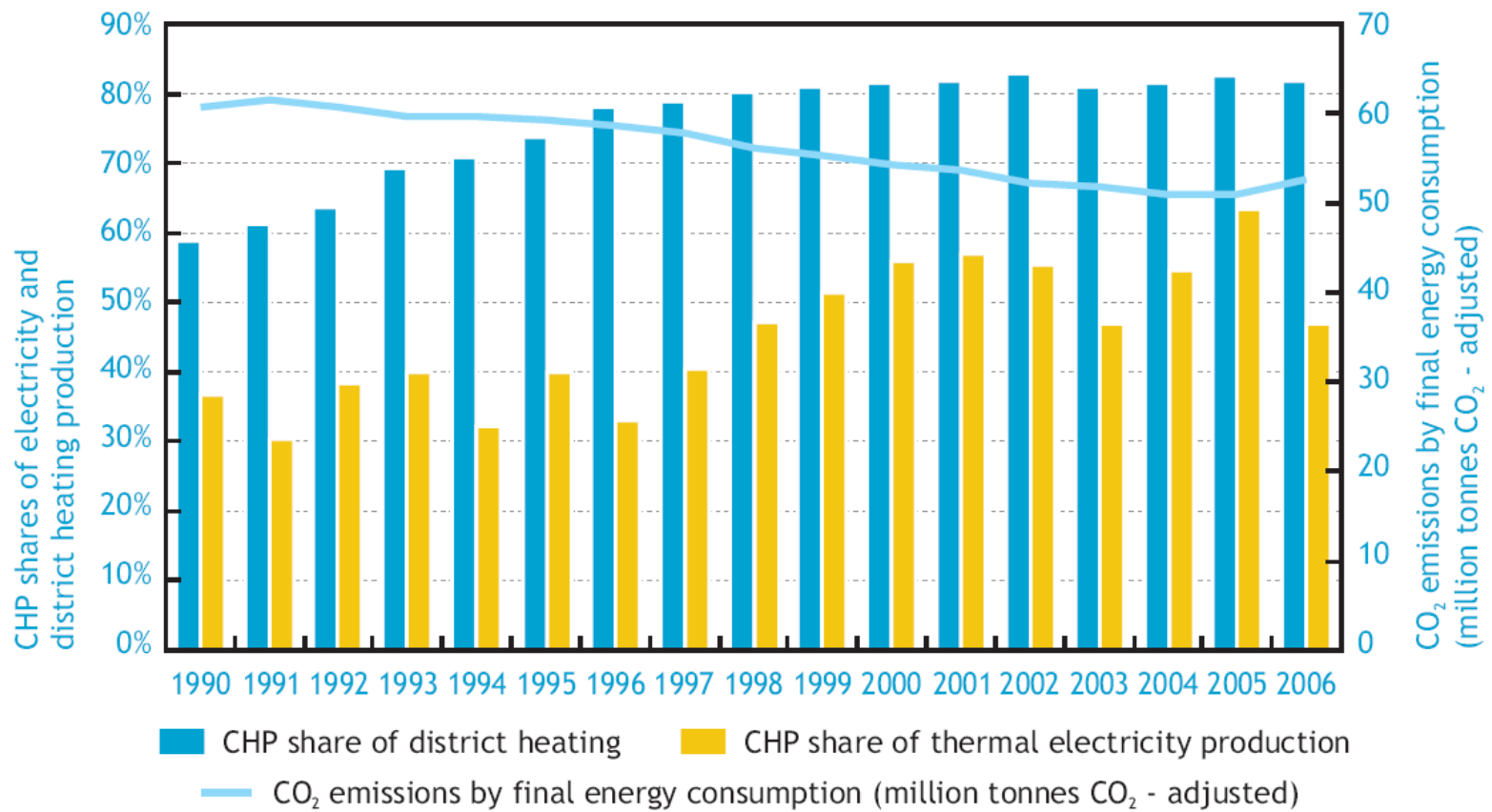


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# Denmark's Win-Win-Win Approach

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Source: IEA, *CHP: Evaluating the Benefits of Greater Global Investment* (2008)

Enhanced energy security

Reduced GHG emissions

Use of local resources



# Steps to Success

- Create a Champion
- Design a strategic framework
- Identify the potential
- Identify barriers to this potential
- Design and implement targeted policies



*CHP Plant:  
Arvind Textile Mill, India*

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# A Range of CHP/DHC Success

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Denmark Rating:



Finland's Rating:



Germany Rating:



Netherlands Rating:



Japan's Overall CHP Rating:



Republic of Korea's  
Rating:



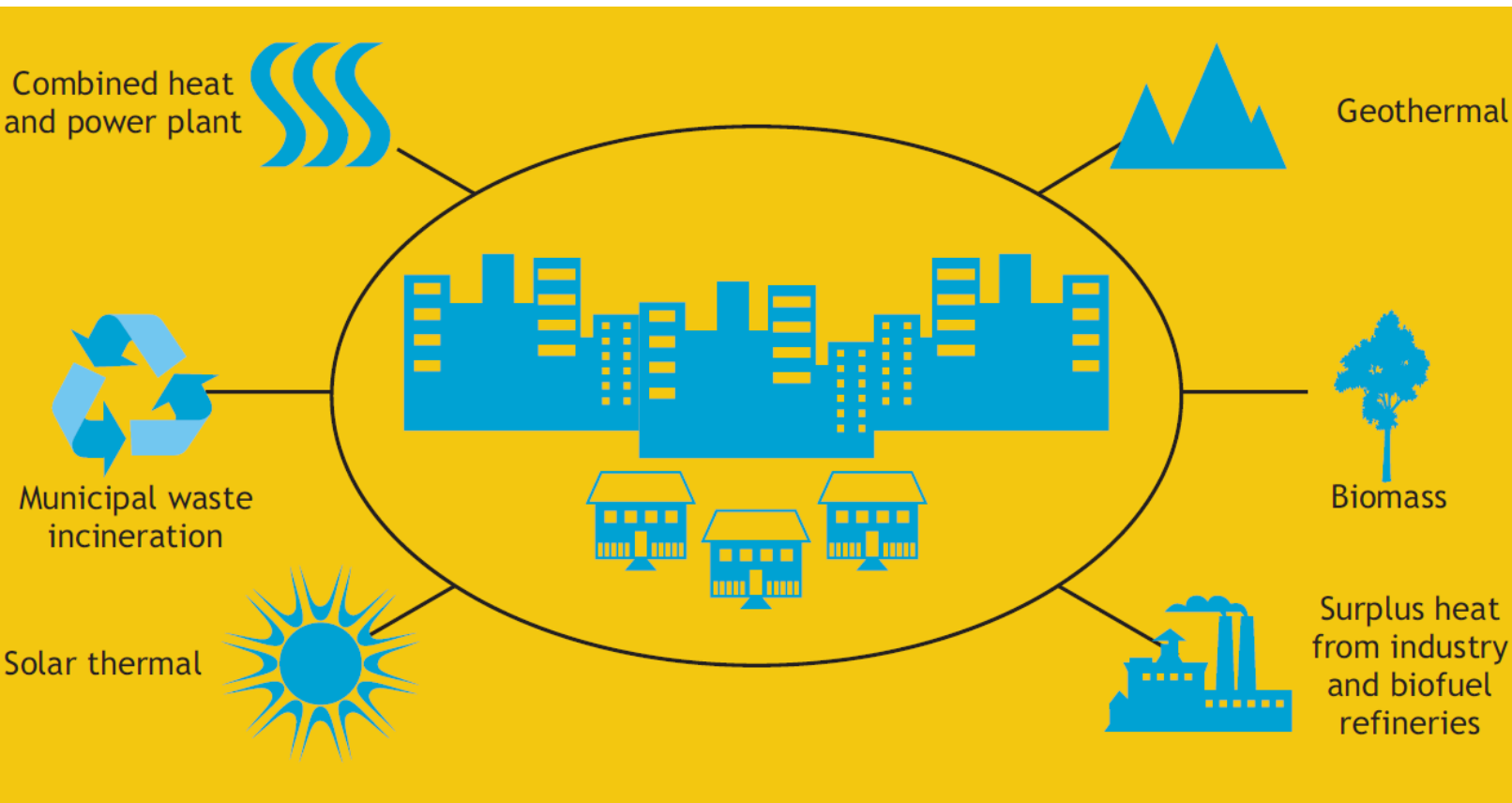
UK Rating:



United States Rating:



# CHP/DHC: Technologies for Today...



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## and for a Low-Carbon Tomorrow

# For More Information

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*Report available for download at*  
<http://www.iea.org/files/CHPbrochure09.pdf>

*Visit the IEA's International  
CHP/DHC Collaborative at*  
<http://www.iea.org/G8/CHP/chp.asp>