CODE2

Cogeneration Observatory and Dissemination Europe

D2.2 Roadmap Structure

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Process for developing the roadmap

In the 27 National CHP Roadmaps, CODE2 will set out a proposal for actions, which based on the consortium's findings provide an example of a feasible path to grow cogeneration in each of the 27 Member States. The project will develop a better understanding of key market and policy interactions around cogeneration in the Member States and will expand on the Member State potential statements (2007 - ongoing) and barrier identification.

The Roadmaps will highlight markets and market segments where the national potential lies and specifically where the market is sufficiently mature in awareness, economic proposition and industry readiness to be addressed.

The chapter headings in this guide and its appendices should be the framework for all the 27 National Cogeneration Roadmaps as far as possible (and where the information can be reasonably accessed.) The content suggestions are indicative and will need to be added to and adapted according to the different Member States circumstances.

Roadmaps will be developed initially for: Germany, Italy, Poland, Belgium (Flanders), Ireland, Greece and Slovenia. The above will then be discussed with Member State specialists in dedicated workshops in each pilot country and the content and layout of the roadmaps will be improved.

Roadmaps will subsequently be produced for the remaining EU Member States using the process and template developed for the first seven countries.

1 Background to cogeneration in each Member State

Summary of CHP installed capacity in EU Member State and the most common segments. Keep this short and use Eurostat 2008 numbers. Additional numbers for years 2009-2011 can be added alongside in a table format referencing the numbers source and grounds for use.

	Installed capacity el	Total heat supplied (units)	Total electricity generated (MWh)	Total % electricity
2008				

2008 Eurostat CHP capacities

Summarise the energy and climate strategy of Member State. Include comments on any relevant target for energy efficiency, CHP itself, CO2, renewables. Are specific generating technologies encouraged? How are the CO2 and renewables targets translated at the local level? Is there any heat planning guiding policy?

What are the projections for CHP to 2020-2030 as found in Member State report and other recognised sources? What are the assumptions embedded in these projections and is the Member State on track particularly when published targets have been given?

Which applications for CHP exist in the Member State? Are there obvious gaps? Which sector if any is growing and why?

2 Analysis

2.1 Awareness

Using the best practice cases developed in WP2 as the example of a level of market awareness which could be an indicator of market maturity for CHP (the development in the member state, the regional level structure and awareness,) comment on the relative maturity of the CHP in this member state market. Comment in addition on the existence of

- Benchmarking activity
- Interest groups which include CHP and are active in professions/industry/societal groups/policy structures
- Shared information (level of advertising, social interest, any exchange that can generate a “market”)
- Energy efficiency awareness as shown by campaigns, societal trends, policy agenda

Comment on how readily the best practise conditions for the region are transferable from the best practise country to this Member State.

Is there a champion// champion group?

(The IEA concluded from their work on CHP and the policy surrounding it that the presence in the policy arena, or public life of a CHP champion was a significant indicator for successful CHP policy).

Is there a link between regional and central government policy and implementation which allows consistent thinking on energy efficiency and CHP and a clear path for EU legislation?

What could be first steps in awareness raising preferably working with the existing available structures (e.g. strengthen existing industry and business coalitions, proposals for expanding existing education and training provision around CHP, creating new and supporting existing CHP awareness efforts at regional and city level).

2.2 Policy development

Understood best practices in policy regarding CHP (Germany /Flanders/other?) will be used to develop recommendations for policy improvements in the Member States and which are appropriate to the Member State and their chosen energy and climate policy.

Analysis of the major existing barriers and policy gaps impacting cogeneration growth (what barriers exist in the electricity market, is there an effective support scheme? How well is the opportunity for CHP co-ordinated with other energy technologies?

Analysis of the economic potential for CHP in the Member State. The single basic requirement for starting CHP growth is making it an economic proposition. As for the awareness study use two simple indicators in the assessment of the economic position:

- CHP economic is: good, modest, poor (qualitative CBA indicator based on current response of the market to CHP where it is offered)
- Simple payback of the investment (in years) which is quite commonly used, and investors usually operate with it. (quantitative CBA indicator)

Complete/fill the matrix below with three given colour options based on the general assessment of he CBA for the given size, fuel and sector classes of CHP units. Use the prevailing colour category based on the current economic conditions and market situation of CHP in the Member State. The example for Slovenia is given.

2.3 CHP economics matrix

Member state	Micro		Small & Medium		Large		
	up to 50kW		*up to 10 MW*		*more than 10 MW*		
	NG	RES	NG	RES	NG	Coal	RES
Industry							
Services							
District heating							

Slovenia	Micro		Small & Medium		Large		
	up to 50kW		*up to 10 MW*		*more than 10 MW*		
	NG	RES	NG	RES	NG	Coal	RES
Industry							
Services							
District heating							

Legend:

"normal" CHP Investment has **good economic benefits**, return on investment acceptable for the investors, **interest for new investment exists**, there are no significant economic barriers for the implementation.

"modest" CHP Investment has **modest/limited economic benefits** and return on investment, **limited interest for new investments**.

"poor" CHP Investment has **poor or negative return on investment or is not possible due to other limitations**, **no interest/possibilities for new investments**.

NG **Natural Gas** or appropriate fossil fuel

RES **Renewable energy sources** (wood biomass, biogas, etc.)

Develop recommendations for the main non-economic barriers (awareness, planning, coordination of resources, information, skills and training gaps) at national level and at regional level and recommend how these are overcome in best practise cases (keep such recommendations appropriate to the Member States own stated energy and climate policy).

Identify options indicating policy changes which would align the Member State's policy with understood best practise regarding CHP.

2.4 Market opportunities

Using the Member States own potentials reports, expert input and published materials with an analysis of under penetration of CHP in some market sectors, identify those market sectors that show the best initial potential for growth (ensure that industrial sectors where both the opportunity is high and the renewables economic opportunity is significant are commented on).

Comment on the potential opportunity for SME's directly involved in key segments and involved in the supply chain.

Comment on the potential for micro-CHP and bio-energy CHP in the Member State and where it appears in the published literature.

Develop proposals for each Member State in the area of markets, technology and industry which could be stimulated through CHP growth.

Identify those market segments which it appears could be sectors for CHP expansion, including particularly industry sectors where there is a clearly underdeveloped CHP potential and where the cost-benefit analysis demonstrates clear benefits. The existence of a low level of barrier must also have been identified.

3 The Roadmap

Explain what potential for CHP out to 2020 -2030 is assumed, based on the published material. Focus on the heat demand and write the roadmap from the heat perspective.

State clearly assumptions about changes in policy awareness and industry focus.

Extrapolate on the basis of these assumptions to give a plausible CHP roadmap out to 2030 with milestone at 2020. Include a conservative best case as well with the changes in assumptions this would require.

Elements to keep in mind in developing the roadmaps:

- Key assumptions about the market size: highlight which references have been used and their analysis
- Bring out the role of micro-CHP and bio-energy CHP within this projection
- Present the Roadmap as a graph of a set of tabulated data
- Key assumptions about policy development what must change to achieve the plan
- Awareness: what must change to achieve the extrapolation given

4 What role will the new EED play in the development of CHP?

Knowing the requirements of the EED's Heating and Cooling Plan and CBA comment on what information is currently missing and using the information from the United Kingdom and Denmark comment on good heat planning.

Use a case study example from the Member State and run a CBA on it using the requirements of the new EED. Comment on the effectiveness of the EED CBA at identifying at the national level good areas for CHP development.

What specific policy elements of the EED will be most significant for CHP in the Member State? What are the policy gaps still remaining after EED implementation (assuming full implementation)?

Comment on the likely effect of EED articles:

- Article 6: inclusion of CHP in the 1,5% annual efficiency improvement for energy distributors
- Article 10: heating and cooling planning comprehensive assessment by Member States
- Article 10: siting of new installations using CBA with qualifying clauses
- Article 12: Access to the grid requirement which allow prioritisation of dispatch by Member States

Additionally: Audit, new electricity markets, Member State target and other clauses if they apply significantly to Member State CHP market.

5 Sources

The following list is not comprehensive and partners are requested to update and develop it throughout the project.

Each Member State report must contain a comprehensive reference list:

1) Member State potential studies (DG ENER website and CODE website)
2) Heat roadmap 2050, Prof Henrik Lund, Aalborg University
3) UK heat mapping exercise (CHPA)
4) Danish heat mapping exercise
5) All the 2050 Roadmap work in the primes model and impact assessment
6) All the EED background work, including the impact assessment
7) All official Member State reports on CHP
8) Member State action plans under RES
9) SME documents from Denmark and their website

Appendix 1: Roadmap report structure

The individual reports will follow the structure laid out in the analysis and include at minimum the tables and graphs indicated. In addition, introductory paragraphs will be included in the report as indicated below.

Background to CHP in Member State
In the introduction of every roadmap, national and EU wide, a short explanation on the necessity of a CHP Roadmap seems to be useful: why do we need something additional to the existing instruments? What is the add-on of the proposed Roadmap?

Develop standard front page (task COGEN Europe)

Analysis
In this chapter initially should be taken surveyed and discussed if there exist already any plans, efforts or initiatives to systematically increase CHP in the countries. If so, it should be explained already in the introduction ("chapter 0") why we need the proposed CHP Roadmap additionally.

The Roadmap
An introduction emphasising the focus on heat and that the scenario proposed in the Roadmap is presented to challenge current assumptions and to stimulate debate on CHP.

What role will the new EED play in the development of CHP?
Introductory paragraph on the process for implementation of the EED and the timescale anticipated. The future reporting milestones will also be covered.