Federal Ministry
for Economic Affairs
and Energy

CA Energy Efficiency Directive

Energy policy implementation in practice: Germany: support for CHP/DH

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“Energiewende” in short, CHP

- Phasing out of nuclear until 2022

- Decision to base energy system on renewables and efficiency
  - minus **80-95%** GHG-emissions in 2050 cp to 1990
  - **80%** RES share in electricity in 2050
  - Concrete intermediate targets for 2020, 2030, 2040

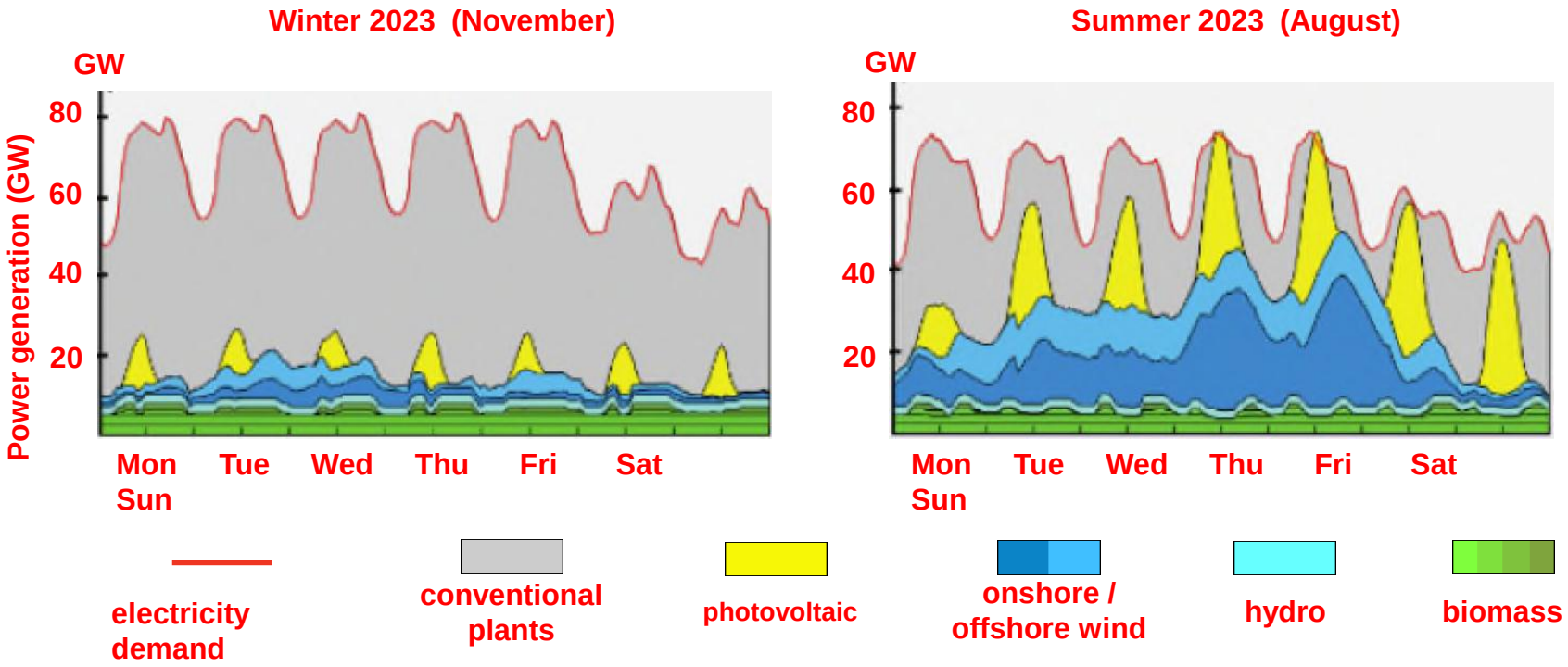
- Triangle of energy policy objectives:
  - Not only climate protection
  - But also **security of supply and affordability**
  - “Energiewende” has a strong **economic background: ensuring future competitiveness**
- CHP is part of this process (efficient generation, reduction of CO2)
  - 16 % of net electricity production in CHP (2013, app. 100 TWh)
  - Potential especially in large urban areas

CHP/DH in Germany – State of play

Development of net-electricity production of CHP-units 2005 - 2013

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Net electricity production	582	597	599	599	558	591	574	591	595
CHP-eletricity generation	**82,4**	**86,9**	**86,5**	**89,2**	**89,2**	**97,0**	**94,1**	**95,1**	**96,4**
Public electricity supply	51,5	54,0	51,9	53,8	50,5	53,3	50,9	51,1	49,7
Hardcoal	13,7	12,4	11,1	11,2	11,6	13,3	12,1	12,8	13,7
lignite	3,8	3,7	3,7	3,8	3,7	4,2	4	4,2	4,5
Oil	0,7	0,3	0,2	0,1	0,2	0,2	0,3	0,1	0,1
Gas	31,4	35,1	34,1	35,3	31,2	31,5	30	28,9	25,8
Renewable	0,4	0,5	0,6	0,9	1,2	1,3	1,5	1,7	2,2
Sonstige	1,6	2,1	2,3	2,5	2,6	2,8	2,9	3,3	3,4
Industry	25,6	25,8	25,8	25,7	26,6	29,8	28,4	28,3	29,7
CHP units < 1 Mwel	2,1	2,2	2,4	2,7	2,9	3,3	3,8	4,5	4,9
Biogene KWK*	3,2	4,9	6,4	7,0	9,2	10,6	10,9	11,2	12,0
CHP –share in % (cc to total net electricity generation)	**14,2%**	**14,5%**	**14,4%**	**14,9%**	**16,0%**	**16,4%**	**16,4%**	**16,1%**	**16,2%**
*Biogene Anlagen, die nicht in der Statistik der Allgemeinen Versorgung oder Industrie enthalten sind									

CHP/DH– Potential, compatibility with renewables

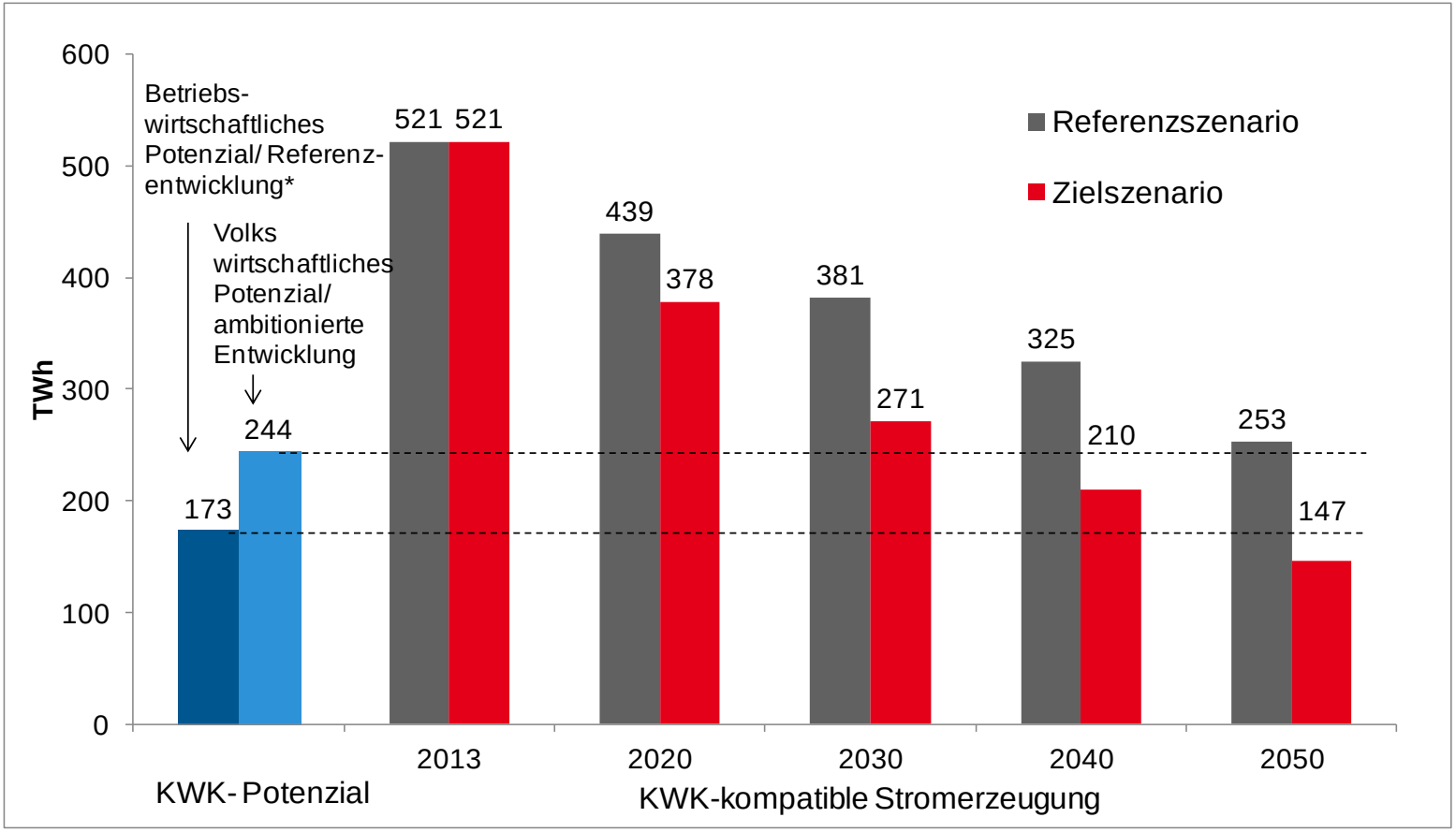


Source: Agora Energiewende 2015

Conventional back-up capacity for the winter will still be needed.

CHP/DH– Potential, compatibility with renewables

- CHP-potential especially in big cities, in the long run flexibility needed



* Volkswirtschaftliche bzw. betriebswirtschaftliche Betrachtung für Objekt und Fernwärme KWK, Referenz bzw. ambitionierte Entw. für Industrie-KWK

Policy measures concerning CHP in Germany

- CHP-act (Kraft-Wärme-Kopplungsgesetz, since 2000), i.a.:
  - preferable access to the grid
  - feed in tariff for 30.000 operating hours between 5,4 for small and 1,8 ct kWh for big units (> 2 MW), max. 750 Mio. €/a.
  - Installation of new CHP units,
  - modernisation only, if the costs > 25%50% of the costs for a new installation.
  - Investment grants for heat distribution infrastructure (heatgrid/storage systems): 30/40 % of investment cost, max 5/10 Mio. €/project.
- Small CHP (<20 kW): investment grants
- Standards for new houses (EEWärmeG, EnEV)
  - New buildings in general must fullfill high isolation standards and/or use “green heat” (solar/geothermal, heatpumps)
  - CHP helps fullfilling these standards
- Energy taxation
  - No taxation of in put energy for high efficient CHP during depreciation period (SA 33848 - 2011/N)

EU-specifications for energy efficiency and for CHP (1)

- EU energy efficiency target: 20 % in 2020

EED 1, 2

„challenges resulting from increased dependence on energy imports and scarce energy resources, and the need to limit climate change (…) Energy efficiency (…) improves security of supply by reducing primary energy consumption and decreasing energy imports. It helps to reduce greenhouse gas emissions (…) and thereby to mitigate climate change.“

EC-Conclusions of 8 and 9 March 2007. EC- Council of 4 February 2011: „Projections made in 2007 showed a primary energy consumption in 2020 of 1 842 Mtoe. A 20 % reduction results in 1 474 Mtoe in 2020, i.e. a reduction of 368 Mtoe as compared to projections.“

- Energy Efficiency Directive establishes a set of binding measures for member states
- I.a.: (some kind of) support for combined heat and power and district heating (article 14, 15 para 5, 6, 7)

EED, article 14 para 2

“Member States shall adopt policies which encourage the due taking into account at local and regional levels of the potential of using efficient heating and cooling systems, in particular those using high-efficiency cogeneration. (…)”

- “targets and timetables” call for action by member states which might involve state aid, especially when other options are unlikely to deliver in short term.

EU-specifications for energy efficiency and for CHP (2)

- Guidelines on State aid for environmental protection and energy 2014-2020 (2014/C 200/01)
- 3.4. Energy efficiency measures, including cogeneration and district heating and district cooling (138 ff.)
- Objective of common interest, only high efficient cogeneration, need for intervention, incentive effect, etc.
- Proportionality:
  - Investment aid for energy-efficiency measures (148, 149, annex): how to establish the counterfactual scenario ???
  - Operating aid => competitive bidding process/exceptions (126): higher support level due to limitations from heat demand/infrastructure???
- Notifiable individual aid (20 lit. a and d):
  - investment aid: aid amount > EUR 15 million for one undertaking
  - cogeneration electricity capacity exceeding 300 MW