Shell Hauswärme-Studie
Nachhaltige Wärmeversorgung für Wohnungsgebäude
Fakten, Trends und Perspektiven

Neu-Ulmer Energietag 2012

Dr. Jörg Adolf, Shell Deutschland, Hamburg
DISCLAIMER (HAFTUNGSAUSSCHLUSS)

The companies in which Royal Dutch Shell plc directly and indirectly owns investments are separate entities. In this presentation “Shell”, “Shell group” and “Royal Dutch Shell” are sometimes used for convenience where references are made to Royal Dutch Shell plc and its subsidiaries in general. Likewise, the words “we”, “us” and “our” are also used to refer to subsidiaries in general or to those who work for them. These expressions are also used where no useful purpose is served by identifying the particular company or companies. “Subsidiaries”, “Shell subsidiaries” and “Shell companies” as used in this presentation refer to companies in which Royal Dutch Shell either directly or indirectly has control, by having either a majority of the voting rights or the right to exercise a controlling influence. The companies in which Shell has significant influence but not control are referred to as “associated companies” or “associates” and companies in which Shell has joint control are referred to as “jointly controlled entities”. In this presentation, associates and jointly controlled entities are also referred to as “equity-accounted investments”. The term “Shell interest” is used for convenience to indicate the direct and/or indirect (for example, through our 34% shareholding in Woodside Petroleum Ltd.) ownership interest held by Shell in a venture, partnership or company, after exclusion of all third-party interest.

This presentation contains forward-looking statements concerning the financial condition, results of operations and businesses of Royal Dutch Shell. All statements other than statements of historical fact are, or may be deemed to be, forward-looking statements. Forward-looking statements are statements of future expectations that are based on management’s current expectations and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in these statements. Forward-looking statements include, among other things, statements concerning the potential exposure of Royal Dutch Shell to market risks and statements expressing management’s expectations, beliefs, estimates, forecasts, projections and assumptions. These forward-looking statements are identified by their use of terms and phrases such as “anticipate”, “believe”, “could”, “estimate”, “expect”, “intend”, “may”, “plan”, “objectives”, “outlook”, “probably”, “project”, “will”, “seek”, “target”, “risks”, “goals”, “should” and similar terms and phrases. There are a number of factors that could affect the future operations of Royal Dutch Shell and could cause those results to differ materially from those expressed in the forward-looking statements included in this presentation, including (without limitation): (a) price fluctuations in crude oil and natural gas; (b) changes in demand for the Shell’s products; (c) currency fluctuations; (d) drilling and production results; (e) reserve estimates; (f) loss of market share and industry competition; (g) environmental and physical risks; (h) risks associated with the identification of suitable potential acquisition properties and targets, and successful negotiation and completion of such transactions; (i) the risk of doing business in developing countries and countries subject to international sanctions; (j) legislative, fiscal and regulatory developments including regulatory measures addressing climate change; (k) economic and financial market conditions in various countries and regions; (l) political risks, including the risks of expropriation and renegotiation of the terms of contracts with governmental entities, delays or advancements in the approval of projects and delays in the reimbursement for shared costs; and (m) changes in trading conditions. All forward-looking statements contained in this presentation are expressly qualified by the cautionary statements contained or referred to in this section. Readers should not place undue reliance on forward-looking statements. Additional factors that may affect future results are contained in Royal Dutch Shell’s 20-F for the year ended December 31, 2011 (available at www.shell.com/investor and www.sec.gov). These factors also should be considered by the reader. Each forward-looking statement speaks only as of the date of this presentation, January 19th 2012. Neither Royal Dutch Shell nor any of its subsidiaries undertake any obligation to publicly update or revise any forward-looking statement as a result of new information, future events or other information. In light of these risks, results could differ materially from those stated, implied or inferred from the forward-looking statements contained in this presentation.

The United States Securities and Exchange Commission (SEC) permits oil and gas companies, in their filings with the SEC, to disclose only proved reserves that a company has demonstrated by actual production or conclusive formation tests to be economically and legally producible under existing economic and operating conditions. We may have used certain terms in this presentation that SEC’s guidelines strictly prohibit us from including in filings with the SEC. U.S. Investors are urged to consider closely the disclosure in our Form 20-F, File No 1-32575, available on the SEC website www.sec.gov. You can also obtain these forms from the SEC by calling 1-800-SEC-0330.
INHALTE

- Worum geht’s?
- Rahmendaten
- Technische Potenziale
- Hauswärme-Szenarien
- Weitere Infos
FAKTEN WOHNUNGSSEKTOR

- 18,1 Mio. Wohngebäude
- 40,1 Mio. Wohnungen
- 3,4 Mrd. m² Wohnfläche
- 42,8 m² Wohnfläche/Einwohner
- rd. 700 Mrd. kWh Energieverbrauch
  - 28,5 % des gesamten Endenergieverbrauchs
- 113,1 Mio. Tonnen THG-Emissionen
  - = 14,2% energiebedingte THG-Emissionen (TTW!)
UNTERSUCHUNGSZIELE HAUSWÄRME-STUDIE

- Nachhaltige Wärmeversorgung?
  - höhere Energieeffizienz
  - mehr alternative Energien
  - weniger Treibhausgase
  - sicher und bezahlbar

- ZWEI Forschungsfragen:
  - Welche technischen Potenziale?
  - Hauswärme-Szenarien
INHALTE UND ABGRENZUNGEN

- Fakten, Trends und Perspektiven (bis 2030)
- SZENARIEN ≠ PROGNOSEN
- Wohn- / Nicht-Wohngebäude
- Hauswärme ausschließlich Warmwasser
- keine Klimatechnik
- Brennstoffe / Endenergieverbrauch
- Well-to-Warmth-Bilanzierung für Treibhausgasemissionen (⇒ IFEU)
- Kosteneffizienz/Investitionskosten
WÄRMEZWECKE IM PRIVATEN HAUSHALT

- Raumwärme: 74%
- Warmwasser: 11%
- Sonstige Prozesswärme: 9%
- Mechanische Energie: 5%
- Beleuchtung: 1%

Quelle: Statistisches Bundesamt (2010)
**WÄRMEENERGIETRÄGER FÜR HAUSWÄRME**

**1995**
- Gas: 40,8%
- Öl: 37,9%
- Strom: 4,4%
- Fernwärme: 7,6%
- Kohle: 5,1%
- Sonstige: 4,2%

**2008**
- Gas: 45,6%
- Öl: 27,5%
- Strom: 3,6%
- Fernwärme: 8,6%
- Kohle: 2,3%
- Sonstige: 12,4%

Quelle: Statistisches Bundesamt 2010
WÄRMEERZEUGER

Altersstruktur Ölheizungen

ÖL

- 34,6%
- 41,6%

- 5,9%
- 4,4%
- 13,5%

Wärmeerzeuger im Bestand (2009)

- 7,7 Mio.
- 5,7 Mio.
- 3,0 Mio.
- 0,7 Mio.
- 0,4 Mio.

- Gas-Kessel
- Öl-Kessel
- Gas-Brennwertkessel
- Öl-Brennwertkessel
- Biomasse-Kessel
- Wärmepumpen

Quelle: IWO (2011)

Altersstruktur Gasheizungen

GAS

- 49,9%
- 33,4%
- 11,8%
- 3,1%
- 1,8%

Quelle: IWO (2011)
ALTERSSTRUKTUR WOHNFLÄCHE (2006)

Quellen: Statistisches Bundesamt (2008); eigene Berechnungen
TECHNOLOGISCHE POTENZIALE HAUSWÄRME
HEIZSYSTEM DER ZUKUNFT

Öltank → Brennwertkessel → Pufferspeicher → Kaminofen → Heizung/Warmwasser

Quelle: IWO (2011); eigene Darstellung
GEBÄUDE-EFFIZIENZSTANDARDS

Primärenergiebedarf Heizung (kWh/m²a)

WSVO 1977  
WSVO 1984  
WSVO 1995  
Mindeststandards  
EnEV 2002  
EnEV 2009  
EnEV 2012


Quelle: IPB Fraunhofer (2011); eigene Darstellung
HAUSWÄRME-SZENARIEN

STATUS QUO

Determinanten

Szenarien

Outputgrössen

Wohnungsmarkt

Wärmemarkt

Wohnfläche

Energieeffizienz Wohnraum

Modernisierungsstrategien

Spezifische Treibhausfaktoren

Spezifische Sanierungskosten

Szenario Trend

Szenario Trendbeschleunigung

Szenario Schnell

Szenario Umfassend

Szenario Bio/Erneuerbare

Energieverbrauch

Treibhausgasemissionen

Klimaschutz

Kosten

Kosteneffizienz

Analyse

Zukunft
(BEHEIZTE) WOHNFLÄCHE
WOHNUNGSBESTAND ALTBAU/NEUBAU

Wohnfläche (Mrd. m²)

- Neubau: 16%
- Altbestand: 84%

Quelle: HWWI (2011); eigene Darstellung
ENERGIEVERBRAUCH TREND (1%)

-26,2%

317 Mrd. kWh

Quelle: HWWI, eigene Berechnungen
ENERGIEVERBRAUCH TRENDBESCHLEUNIGUNG (2\%) 

-36,6\% 

>250 Mrd. kWh 

Quelle: HWWI, eigene Berechnungen
TREIBHAUSGAS-EMISSIONEN

Effekt Bio/EE

Quelle: HAWI; eigene Berechnungen
KERN-ERGEBNISSE

- Wohnfläche 2030/08: +10%
- Abriss/Neubau nur 16% ⇒ Sanierung Altbau
- Sanierungskosten: € 386 Mrd. (1%) bzw. € 744 Mrd. (2%)
- ø spezif. Energieverbrauch 2030: 90 kWh/m²a
- Energieverbrauch: -36,2 bis 39,5% (bei 2%)
  - diversifizierter Brennstoffmix / Option Bio+EE
  - Haupt-Energieträger Gas & Öl
- THG-Emissionen: - ≈ 40% (bei 2%)
TEIL- ODER VOLL-SANIERUNG – WAS IST „BESSER“?

- Schnell 2,0 Mrd. m²
- Trendbeschleunigung 1,6 Mrd. m²
- Umfassend 1,3 Mrd. m²
- Trend 0,8 Mrd. m²

sanierte Wohnfläche 2008-2030 in m²

Sanierungstiefe

Sanierungsrate

sanierte Wohnfläche 2008-2030 in m²

m²

m²
Shell HAUSWÄRME-STUDIE

Nachhaltige Wärmeerzeugung für Wohngebäude
Fakten, Trends und Perspektiven

Über die Studie

Flipbook & Downloads

Flipbook
Shell HAUSWÄRME-STUDIE

Downloads
Shell HAUSWÄRME-STUDIE (PDF, 6914 KB) - öffnet in neuem Fenster
Kurzfassung der Studie (DEUTSCH) (PDF, 1976 KB) - öffnet in neuem Fenster
Zusammenfassung der Studie (ENGLISCH) (PDF, 1363 KB) - öffnet in neuem Fenster

Medien
Pressemitteilung zu der Shell HAUSWÄRME-STUDIE
weitere Info:

www.shell.de/hauswaermestudie
www.shell.de/lkwstudie
www.shelll.de/pkwszenarien
www.shell.com/scenarios