

Состояние электроэнергетики

Лазло Варро, начальник отдела анализа рынков газа, угля и
электроэнергии

Международное энергетическое агентство

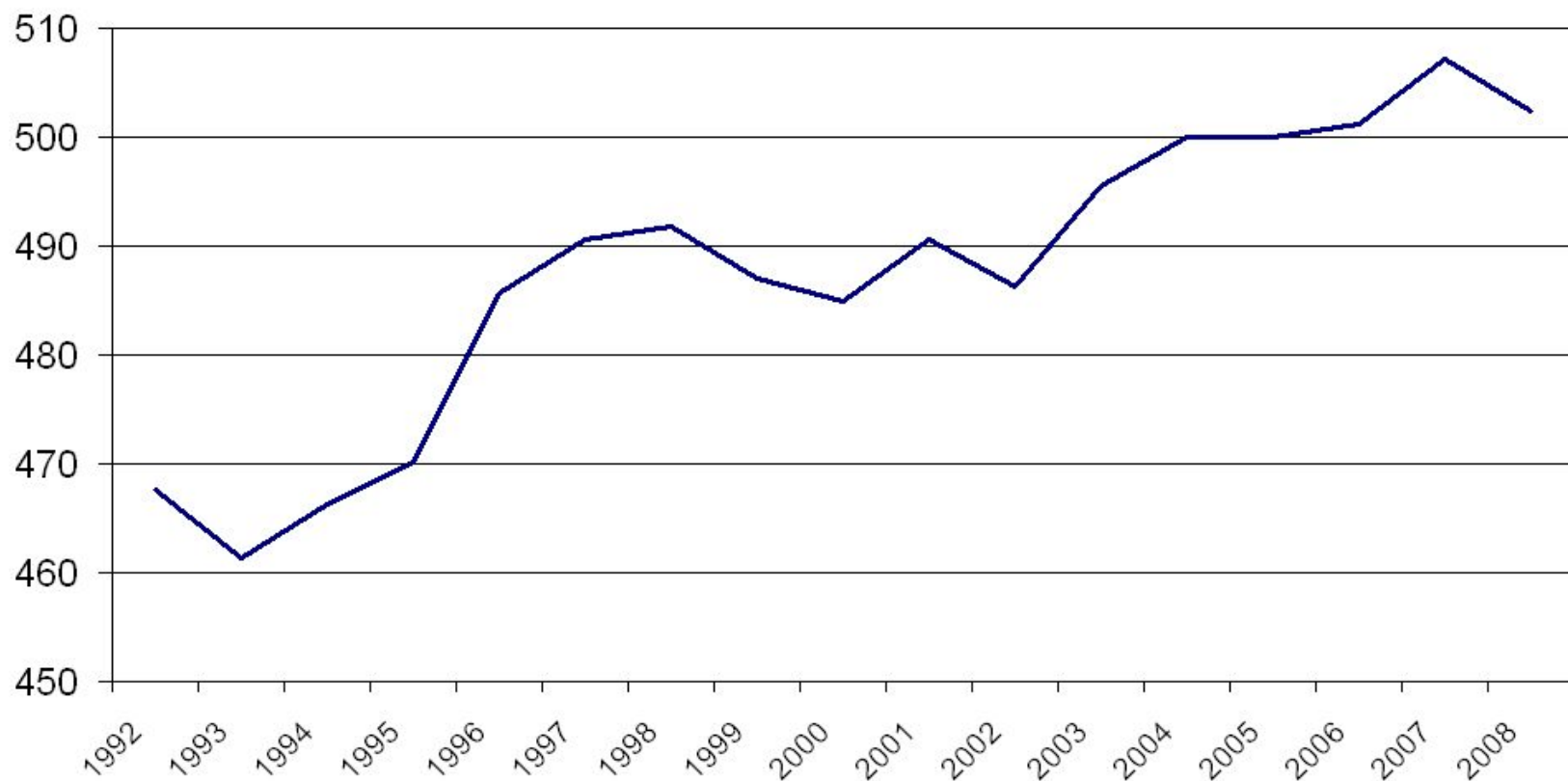


Электричество

- Не теряет популярности
- Ключевая отрасль в борьбе с изменением климата
- Использование углеводородов возрастает
- Основной двигатель спроса на газ и уголь, а значит и российский газ
- Существенный потенциал для повышения эффективности в России

Декарбонизация: первая остановка на пути

Global average carbon intensity of power generation, kg CO₂/Mwh



Гонка декарбонизации: тройка с одной лошадью



Состояние низкоуглеродных технологий 1

АЭС: откат назад после Фукушимы?



Состояние низкоуглеродных технологий 2

УХУ: реальный риск задержки ввода

CCS | Netherlands stops Shell's CO₂ storage project in Barendrecht

“The Dutch government said Thursday it will not allow oil giant Shell to store millions of tonnes of carbon dioxide in a depleted gas reservoir under a small town, upholding the fears of townspeople.

E.ON: incentive could have saved Kingsnorth CCS project

Company suggests “low carbon” version of the Renewables Obligation including CCS and nuclear might have kept project in the UK

By Will Nichols

21 Oct 2010

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Storage Concerns Delay Australian CCS Timeline

March 21, 2011

On 27 January 2011, Australia's federal government announced that it would delay and reduce the funding available to support its A\$2 billion carbon capture and storage (CCS) Flagship funding program in order to support Queensland's flood recovery efforts. As part of those efforts, A\$160 million in CCS Flagship funds will be deferred until after 2015, while A\$90 million will be cut from the CCS Flagship budget altogether. Key trends in this On Point include:

Carbon capture approvals behind UAE-BP project delay

Date: 14/04/2011 • Category: Projects & Communities, Projects & Communities - World

ABU DHABI (Reuters) - Delays in winning approvals on pricing and scheduling of a carbon capture and storage (CCS) project are holding up a \$2.5 billion hydrogen power venture by BP and an Abu Dhabi firm, an official document showed. ...See all stories on this topic »Reuters

<http://www.google.com>

Norway delays CCS project again, angers greens

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By Gwladys Fouche
OSLO | Tue Mar 1, 2011 9:08am EST

(Reuters) - Norway said on Tuesday it would delay again a decision to [finance](#) a top carbon capture project, this time to 2016, in a setback for a technology that is seen as key to mitigate climate change.

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Rotterdam offers the location for the construction of a large-scale power station, which has access to the sea for sea ships that can transport the CO₂ and the solid fuel.

■ Updates

Announcement - Feasibility study stopped

After close consultation between Havenbedrijf Rotterdam NV and C. GEN NV it has been decided on October 26, 2010 to stop the feasibility study on the establishment of a hydrogen power plant (Integrated Gasification Combined Cycle) on the Kop van de Beer-site.

The reason is the technical feasibility of this location, coupled with uncertainties regarding regulation and storage of CO₂ in the Netherlands

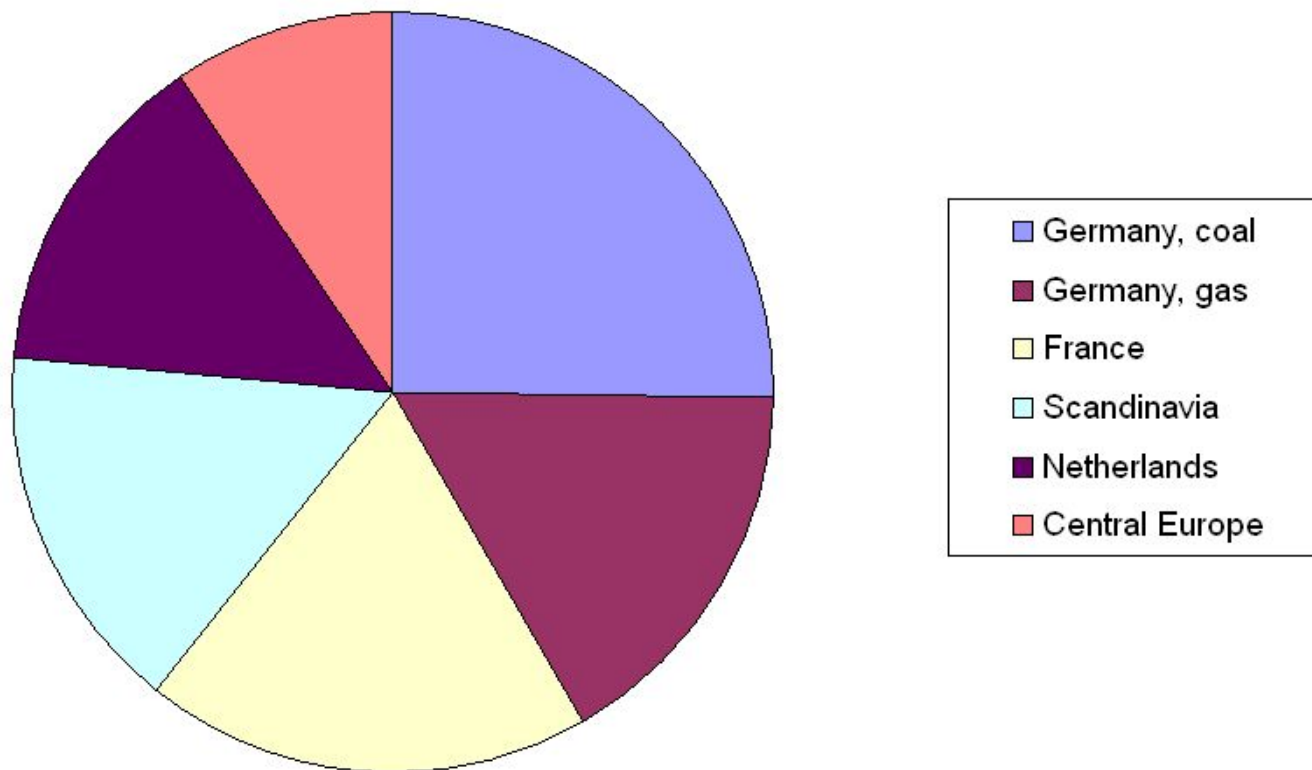
Состояние низкоуглеродных технологий 3

ВИЭ: широкое внедрение, но не всегда в лучших местах

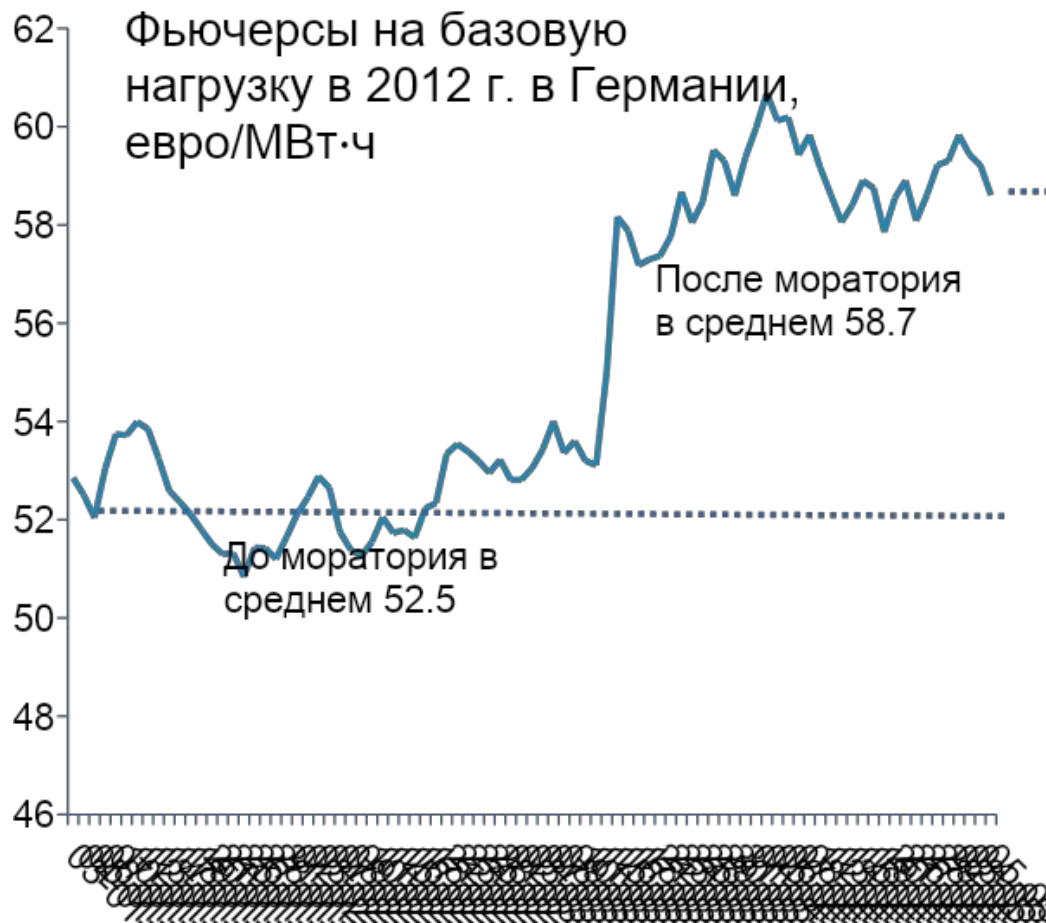
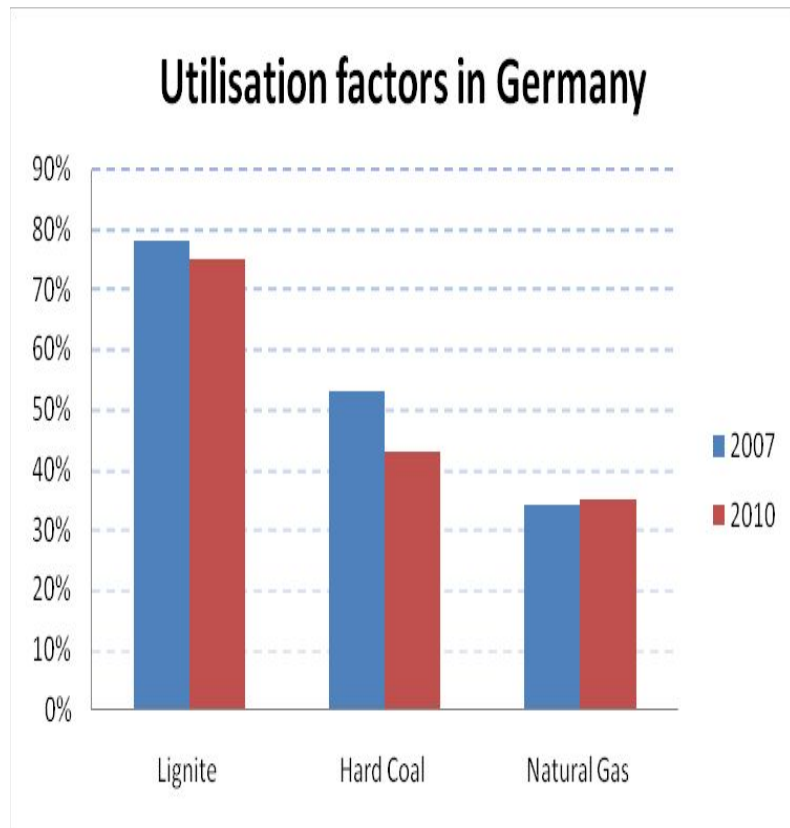


Мораторий в Германии: эффект в масштабе Европы

Where the replacement of German nuclear comes from?



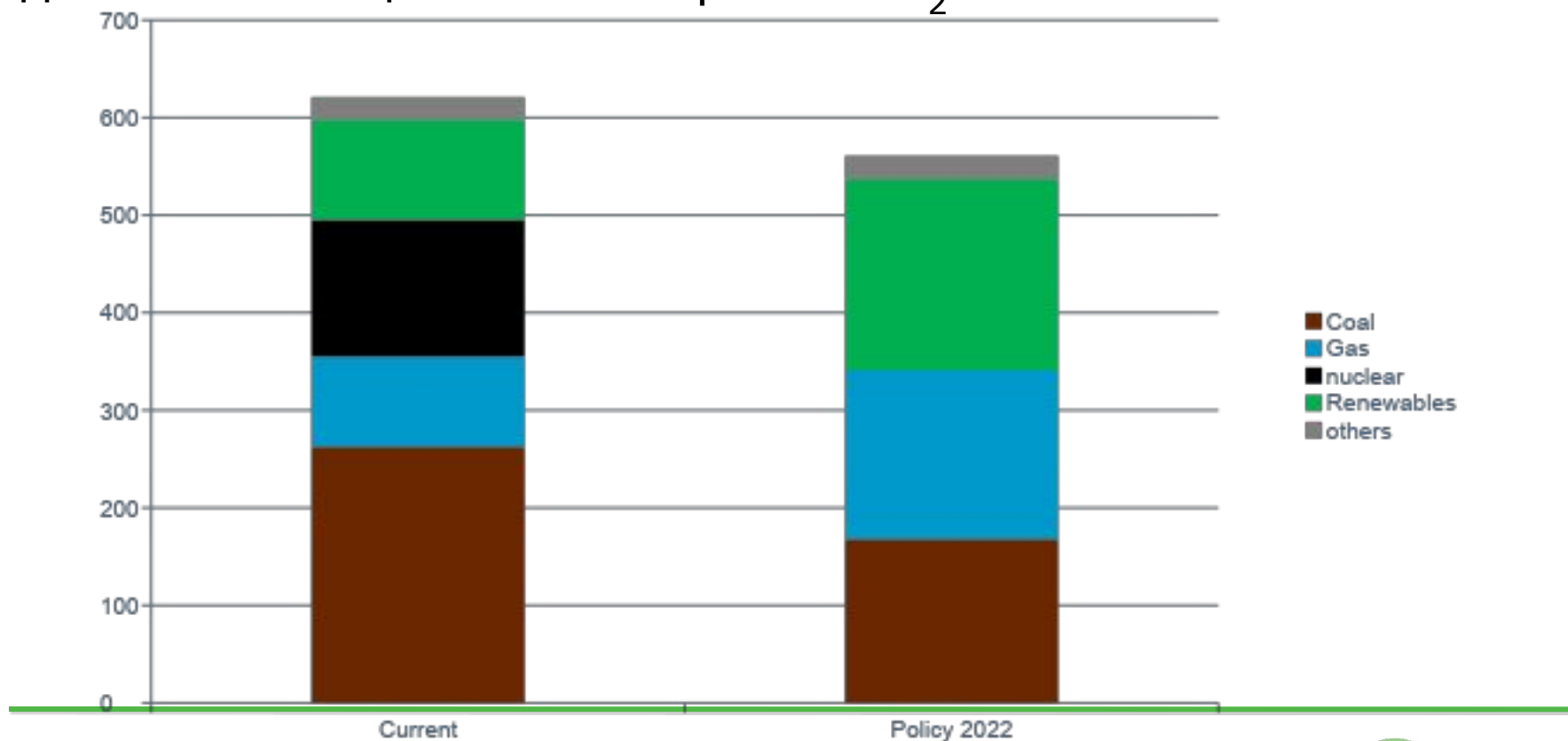
Умеренная 10%-ая реакция цен из-за запаса мощности



Цены на электроэнергию в ЕС все еще ниже уровня возврата инвестиций в новую электростанцию

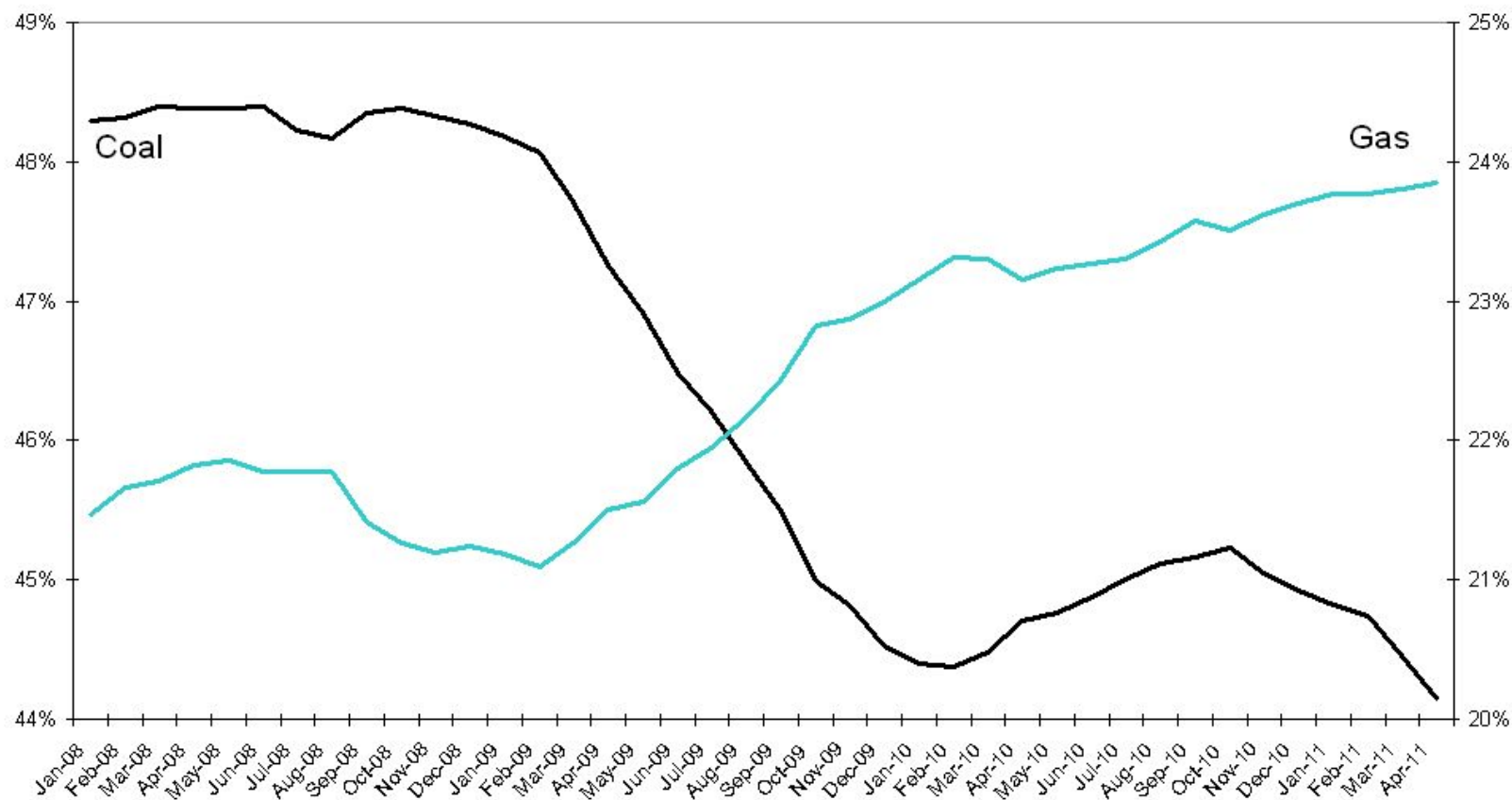
Газ потребуется для сокращения выбросов CO₂

Топливный баланс электроэнергетики в Германии с 10% сокращением потребления, без АЭС, 35% ВИЭ и достижением целей по выбросам CO₂



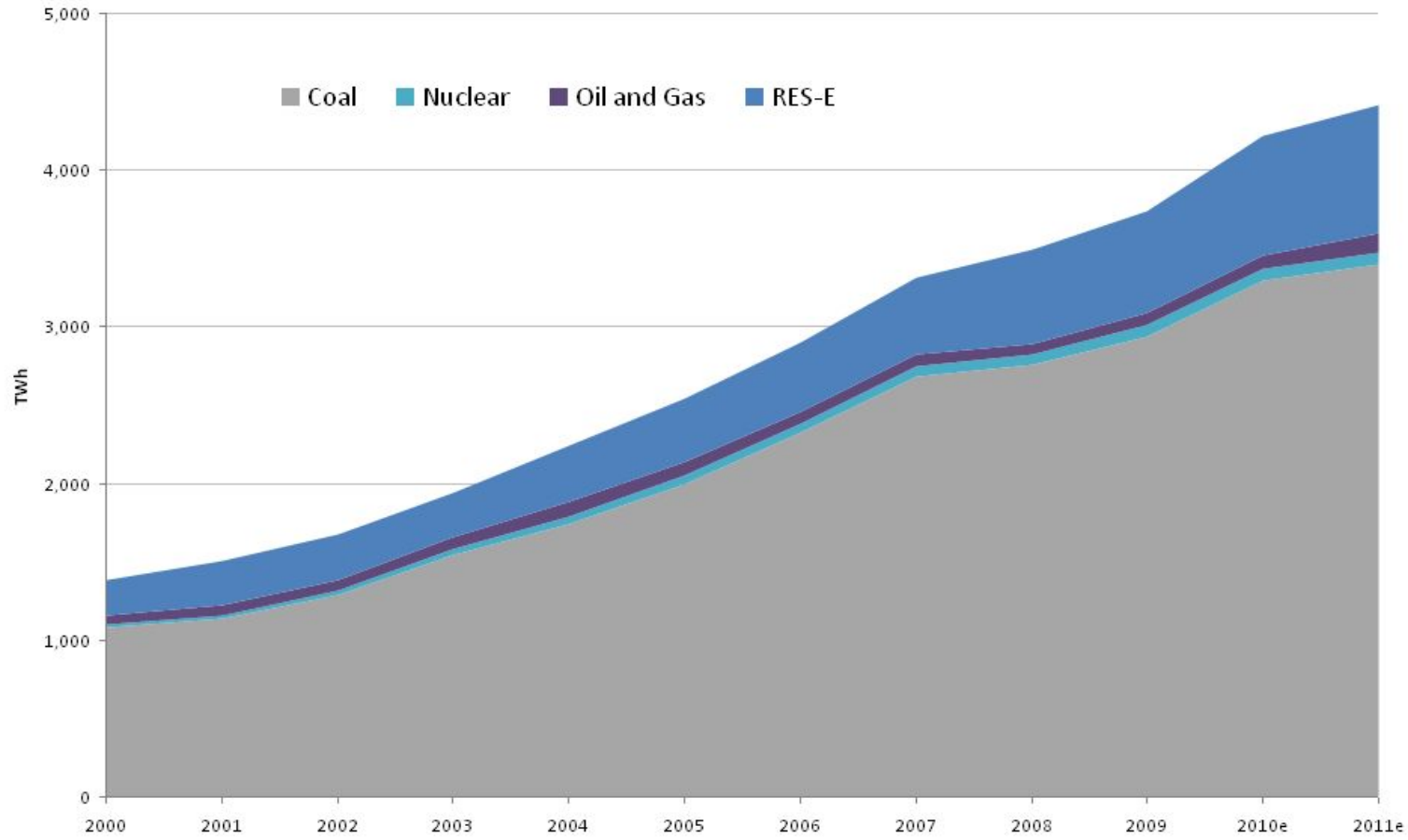
США: золотая эра газа

Share of coal and gas in US power generation



За 3 года переход с угля на газ в
объеме 280 ТВт·ч

Китай: усилия по повышению энергоэффективности и крупнейшие в мире программы по атомной энергетике и ВИЭ



Угольная электрогенерация все равно растет на >100 ТВт·ч/год

В поисках улучшений для российской электроэнергетики



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www.powerplantjobs.com/ppj.nsf/TurbineTypes?OpenForm - [Cached](#) - [Similar](#)

[Alstom Launches Upgraded GT26 :: POWER Magazine](#)

1 Aug 2011 ... Like GE Energy, Siemens, and Mitsubishi Heavy Industries, Alstom has been developing a gas turbine that pushes the 60% efficiency barrier. ...

www.powermag.com/gas/Alstom-Launches-Upgraded-GT26_3872.html - [Cached](#) - [Similar](#)

[High-Efficiency gas turbines add new flexibility | Control Engineering](#)

25 Jul 2011 ... Siemens' H-class gas turbine, the largest machine of its type in ... such as Alstom, GE, Mitsubishi Heavy Industries, and Siemens, offer turbines ...

www.controleng.com/single...gas-turbines-add.../9a6d35a104.html - [Cached](#) - [Similar](#)

[GAS TURBINES IN SIMPLE CYCLE & COMBINED CYCLE ...](#)

Alstom's GT-8C2, 50/60Hz gas turbine with basic specification SGT-600 Industrial Gas Turbine - 25 MW (former designation, Alstom's GT10) (Source: Siemens ... Figure 18

Пути осуществления



- Адам Смит 1776 год:
мир, налоги,
справедливость
- МЭА 2011(текущий
проект по росс-й ээ):
отмена субсидий,
ценовые сигналы на
рынках газа и ээ,
организация рынка