

# **The Future Perspective of the Electricity Market – Unbundling and Market Integration: A German Perspective**

**International Symposium**

**“Towards YR2030 and Beyond”**

**Japan Renewable Energy Foundation (JREF)**

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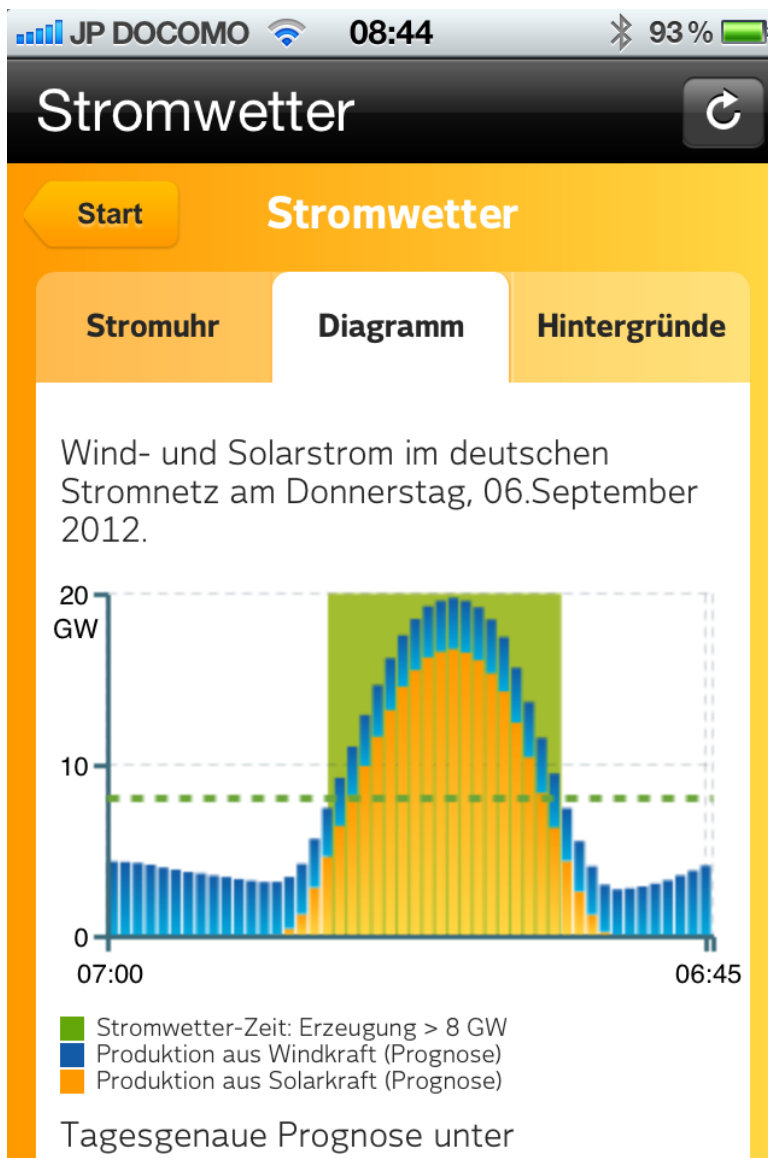
# The German context: Energiewende

## Ambitious and long term targets

	GHG emissions	Renewable Energies		Energy efficiency				Nuclear power
		Gross final consumption	Power generation	Primary energy	Space heating	Final Energy	Power consumption	
<b>2011</b>								<b>-41%</b>
<b>2015</b>								<b>-47%</b>
<b>2017</b>								<b>-54%</b>
<b>2019</b>								<b>-60%</b>
<b>2020</b>	<b>-40%</b>	<b>18%</b>	<b>35%</b>	<b>-20%</b>	<b>-20%</b>	<b>-10%</b>	<b>-10%</b>	
<b>2021</b>								<b>-80%</b>
<b>2022</b>								<b>-100%</b>
<b>2030</b>	<b>-55%</b>	<b>30%</b>	<b>50%</b>					
<b>2040</b>	<b>-70%</b>	<b>45%</b>	<b>65%</b>					
<b>2050</b>	<b>-80 to -95%</b>	<b>60%</b>	<b>80%</b>	<b>-50%</b>	<b>-80%</b>	<b>-40%</b>	<b>-25%</b>	
Base year	1990			2008	2008	2005	2008	2010

Source: BReg (2010/2011)

# Significant share of renewables It's reality



Transparency data  
for power generation  
Day ahead prognosis

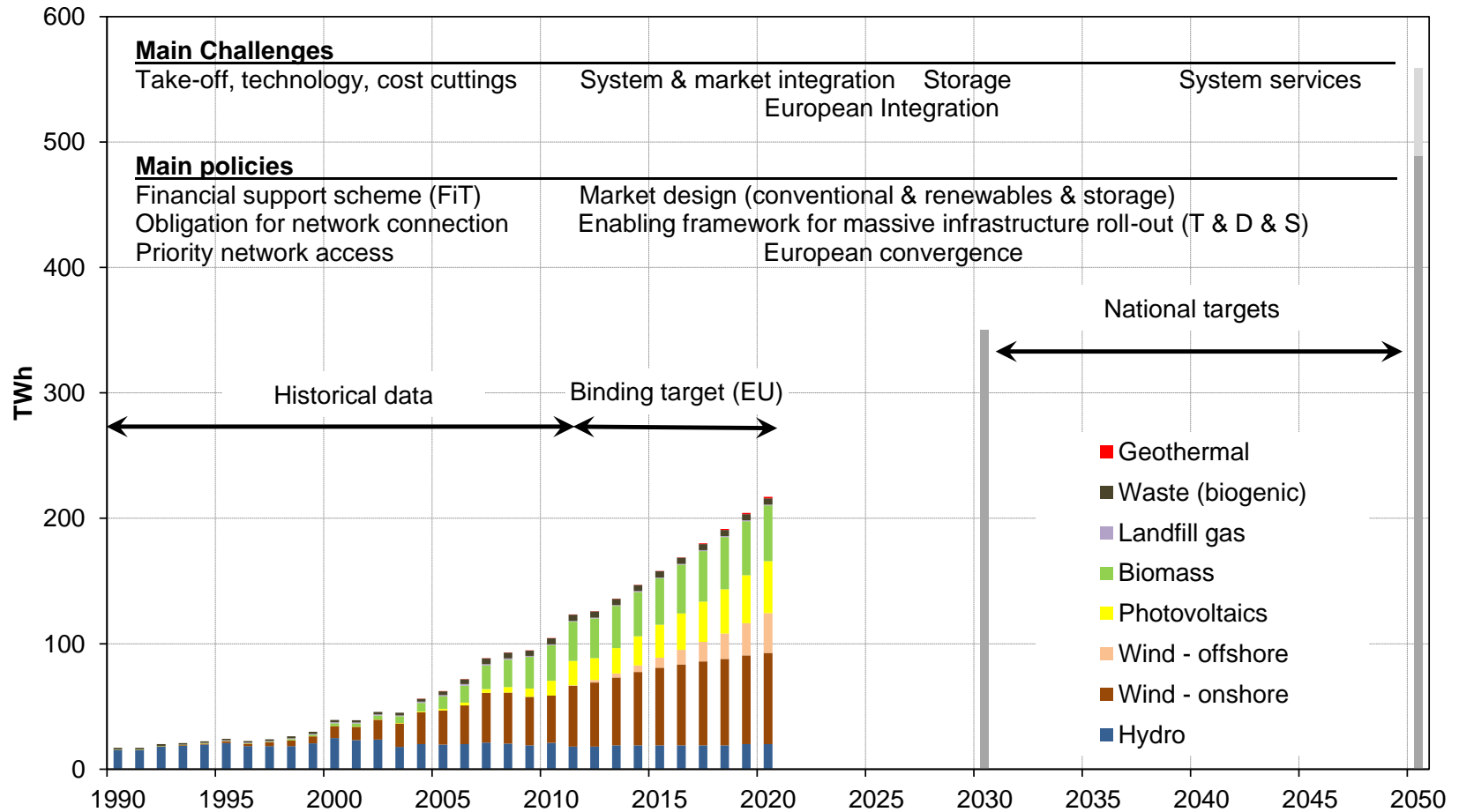
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- **A sunny, low-wind day**
- **Renewables share at noon ~ 40%**

Source: EEX Transparency Platform

# Power generation from renewables

## Challenges & policy approaches



Source: BReg (2012), Öko-Institut (2012)

- **The recent German support scheme (Feed-in Tariff) was the key policy for the take-off phase**
  - Fixed and long-term feed-in tariffs, based on costs
  - Obligation for connection to the (existing) network
  - Priority access to the network and the market
- **The next phase will require a broader policy approach**
  - Today's liberalized (EU) electricity (energy only) market creates neither a solid basis for integration of renewables nor a sufficient economic framework for the necessary conventional investments
    - Price formation based on short-term marginal costs (~0 for wind & solar)
    - No long-term contracts
    - No capacity markets/payments
  - Market integration of renewables requires a reform of today's power markets and a (stepwise) reform of the support scheme

- **The next phase will require a broader policy approach (ctnd)**
  - Significant shares of renewables require new approaches to infrastructure design, operations & development
    - Massive upgrading of transmission and distribution networks is necessary (= significant investments)
    - Unbiased network operators
      - In planning processes
      - With regard to the necessary (long-term) investments
      - Within network operations (access, system services etc.)
    - Independent regulators with a clear mandate
      - Creating an enabling framework
      - Avoiding abuse of market power from infrastructure monopolies
- **This presentation is about infrastructure integration only. However, market integration is another challenging issue**

- **EU market liberalization**

- First package (1996): opening national markets
  - Networks: legal, functional and accounting unbundling for TSOs and DSOs (>100,000 customers)
- Second package (2003): further opening of national markets, regulation of cross-border trades
  - Networks: legal, functional and accounting unbundling of TSOs and DSOs (>100,000 customers)
- Third package (2009): development of regional/European markets, institutions for European co-operation, European guidelines and network codes
  - Transmission Networks: ownership unbundling for TSOs or Independent System/Transmission Operator (ISO/ITO)
  - Distribution networks: legal, functional and accounting unbundling for DSOs (>100,000 customers)
  - High-standard medium-term network planning

- **Starting point**
  - Four major vertically integrated utilities (generation, transmission, distribution, sales): RWE, E.ON, Vattenfall, EnBW
  - Regional & municipal vertically integrated utilities
- **Recent status**
  - Four major unbundled utilities
    - Separate entities for generation and sales
    - Unbundled transmission system
      - Full ownership unbundling: 50 Hertz (formerly Vattenfall), TenneT (formerly E.ON)
      - Partly ownership unbundling: Amprion (formerly RWE which still owns 25%)
      - No ownership unbundling: Transnet BW (formerly EnBW which still owns 100%)
  - Regional & municipal utilities, the larger ones legally unbundled



# Experiences from unbundling

## The German case

- **The German government and significant parts of the German electricity industry opposed all mandatory unbundling provisions when the respective EU legislative proposals were discussed**
- **Ironically, German utilities often went beyond the minimum requirements for unbundling, after these has been approved**
- **What has changed since further steps of unbundling were implemented?**
  - Much more unbiased activities, network companies are a more accepted and reliable partner for policy
  - Significantly more investments in network infrastructure
  - Network companies became a key player on medium- and long-term infrastructure planning with broad and intensive consultations of assumptions, methodologies and results
- **However, this results from the structure of the network companies as well as a (new) effective regulatory body**

# Infrastructure planning in Germany

## The recent Network Development Plan

www.netzentwicklungsplan.de

STARTNETZTOPOLOGIE



www.netzentwicklungsplan.de

SZENARIO B 2032



- **An ambitious and comprehensive support scheme for renewables (financing, network connection, dispatch) as primary instrument is key for the take-off phase**
- **Beyond the take-off phase broader approaches are essential**
  - More complex financing for renewables is essential to optimize investments and operations
  - Creating market structures which are more appropriate
  - Creating an infrastructure industry (transmission and distribution)
    - which is supportive for infrastructure upgrades and roll-out
    - which has an self-interest in infrastructure investments and the ability for implementation of these investments
    - Far-reaching (ownership) unbundling has been effective
  - Creating an effective regulatory body
    - Effective oversight on infrastructure monopolies
    - Effective planning for major infrastructure upgrades & roll-out

**Thank you  
very much**

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