

EU Energy Policy

1

Mr. Sigurd Bunk Lauritsen
Chief Advisor, Energy & Climate Change Manager

August 15th 2012, Bangkok, Thailand

Agenda

2

1. Overview of EU Energy Policy development
2. EU's 20-20-20 target
3. Renewable Energy Development
4. Challenges, Drivers and Lessons learned
5. The way forward from 2020 to 2050

Europe's renewable energy sector 1997-2012

3

EU overall objective of energy policy is threefold

- Reduce greenhouse gas emissions
- Ensure security of supply
- Improve EU competitiveness

The **European Commission White Paper of 1997** on *Renewable Sources of Energy* set the goal of doubling the share of renewable energy in the EUs energy mix from

- 6% in 1997
- to 12% by 2010

This goal has been increased with new political initiatives.

The 2001 Renewable Electricity Directive

4

Directive on the Promotion of Electricity from Renewable Energy Resources following the White Paper

- Led the 27 Member States to develop frameworks for investment in renewables, and ways of overcoming administrative and grid access barriers

National indicative targets for the share of electricity from renewables as a percentage of gross electricity consumption

Overall goal: increase the share of electricity from renewable energy sources from 14% in 1997 to 22% in 2010 (adjusted to 21% with the EU enlargement)

Energy Policy Development

5



Strategic
Energy review



Energy and
Climate Package



Third Internal
Energy Market
Package

**Regulation on
security of gas
supply**

**Energy
Strategy 2020**

**Energy
Infrastructure
Instrument**

**Roadmap
2050**

**Energy
Efficiency Plan**

**External
Energy Policy**

**Renewable
Energy Policy**



SET Plan



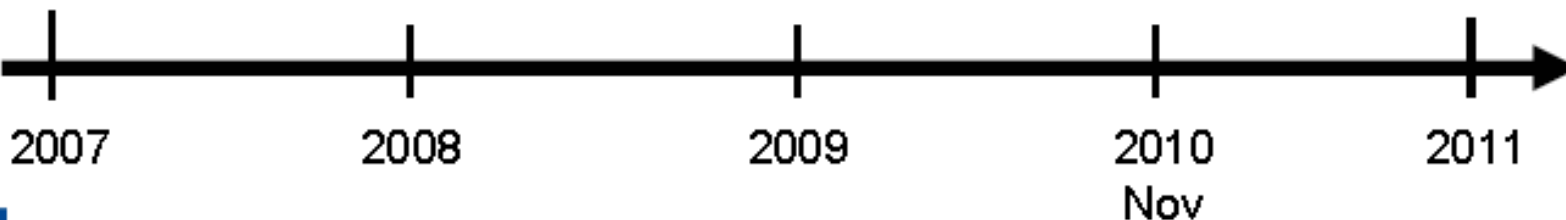
Second Strategic
Energy Review



EEPR

**Energy
Infrastructure
Package**

Directorate-General
for Energy



Corner stones of the EU Energy Policy

6

Treaty on the Functioning of the European Union

New Art. 194 on energy:

Union policy on energy shall aim, *in a spirit of solidarity*, to:

- Ensure the functioning of the internal market;
- Ensure security of supply;
- Promote energy efficiency and the development of renewable forms of energy;
- Promote the interconnection of energy networks



EUs “20-20-20” targets

7

European leaders endorsed the 20-20-20 targets in March 2007 as set forth by the European Commission

- **Reduction of greenhouse gas emissions of at least 20% below 1990 level** (minimum requirement - increased to 30% if other major emitting countries commit to a global climate agreement)
- **20% of the energy consumption to come from renewable energy resources** (minimum requirement)
- **A 20% reduction in primary energy use compared with projected levels, to be achieved by improving energy efficiency** (minimum requirement)

The Strategic Energy Technology Plan

8

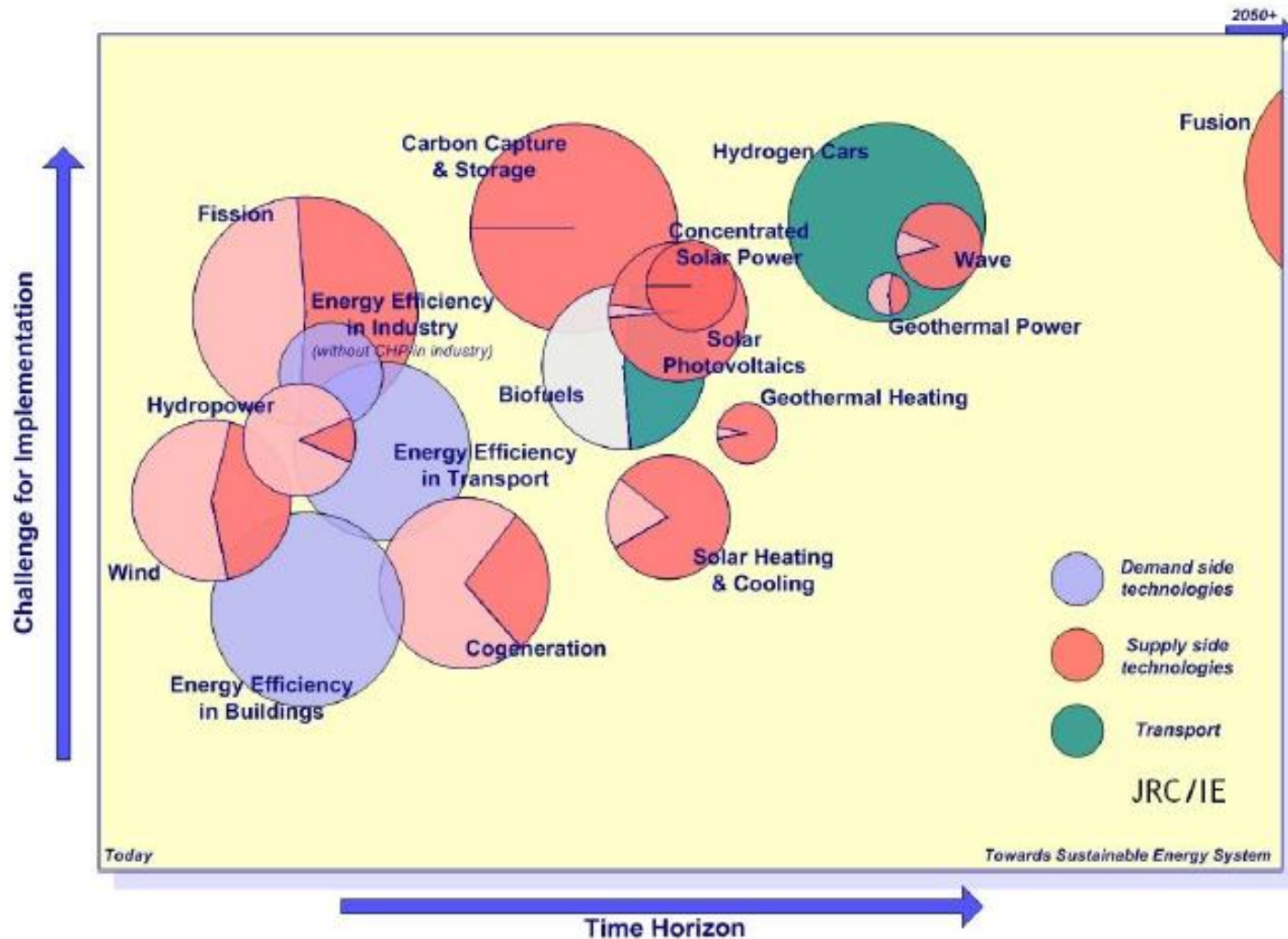
Technology pillar of EUs energy and climate policy

Aims to accelerate the development and deployment of cost-effective low carbon technologies. The plan comprises measures relating to planning, implementation, resources and international cooperation in the field of energy technology

Roadmaps developed for 2010-2020 to initiate investments
Wind, bioenergy, nuclear, CCS, solar, smart grids, and energy efficient cities

SET – Strategic Energy Technology Plan

9



Why these strong goals?

10

> 50 % energy consumed in EU is imported

- 80 % oil is imported
- 60 % gas is imported
- Fossil fuels have negative climate change effects

- The cost of energy for solar and wind decreases drastically every year

- Nuclear energy is rather uncertain

Supply security is crucial – economic development

- EU has a need to be independent of energy policies in other countries

- Some technologies are competitive today

- Technology R&D can support the economies

- Renewables can partly replace Nuclear.

First 21 National Renewable Energy Action Plan



11

RES type	Generation 2010 (TWh)	Generation 2020 (TWh)	Share 2020 (%)	Variation 2010- 2020 (%)
Hydro	335.1	358	31.4%	7%
Wind	160.2	464.3	40.7%	186%
Biomass	102.4	200	17.5%	90%
Solar	21	101.8	8.9%	388%
Other	6.5	16.4	1.4%	154%
TOTAL	625.2	1140.5	100.0%	82%

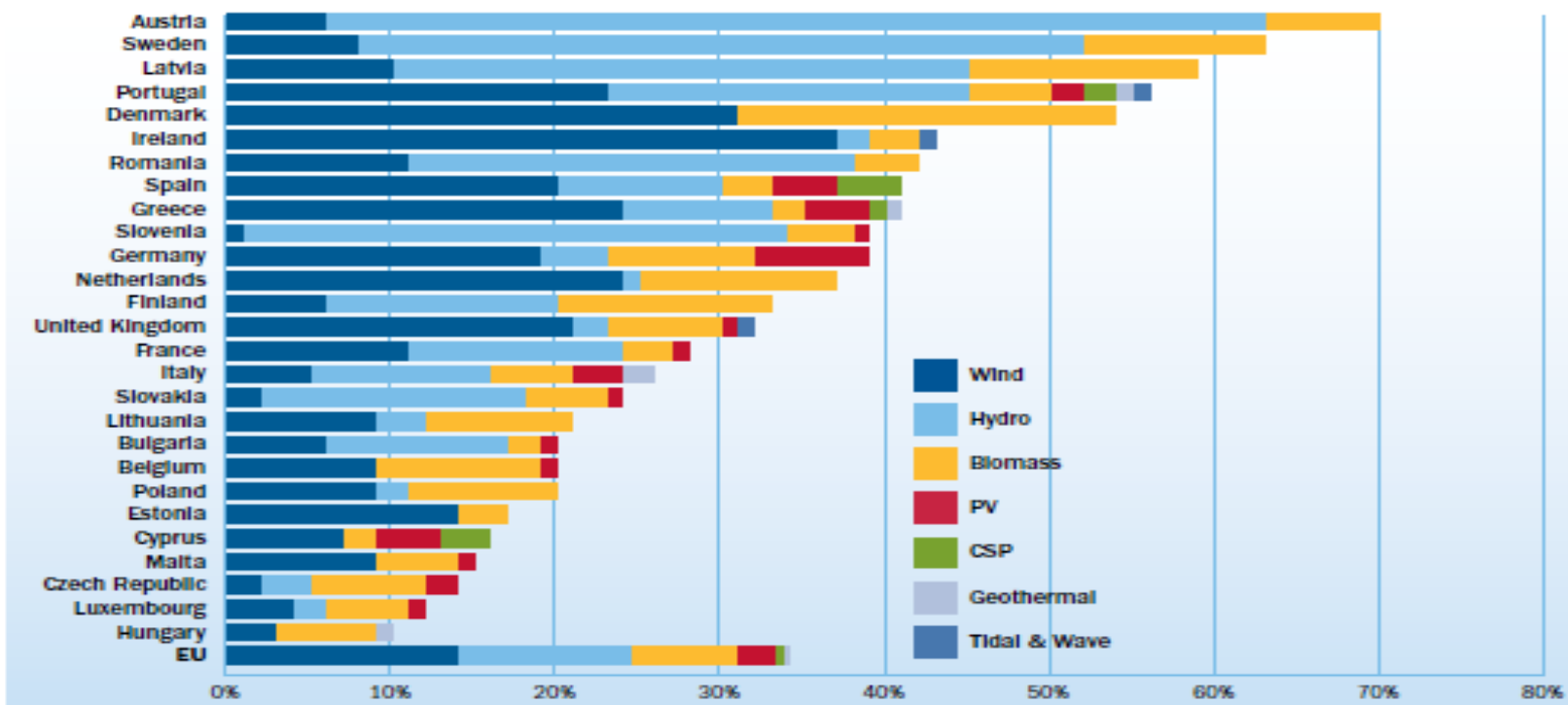
- **Significant development in the main RE sources**
- **Hydro Power is already well developed. Further development may have negative environmental consequences**
- **Wind and Solar will stand for the main development**
- **Infrastructure, Biomass, Hydro power and other sources need to balance off the intermittency of wind and solar**

The 2009 Renewable Energy Directive

12

NREAPs: 34% of the EU's total electricity consumption will come from renewable energy sources by 2020

FIG 5: RENEWABLES' SHARE OF ELECTRICITY CONSUMPTION PER MEMBER STATE (%) IN 2020 ACCORDING TO THE NREAPs



Source: "EU Energy Policy to 2050. Achieving 80-95% emissions reductions", EWEA, March 2011

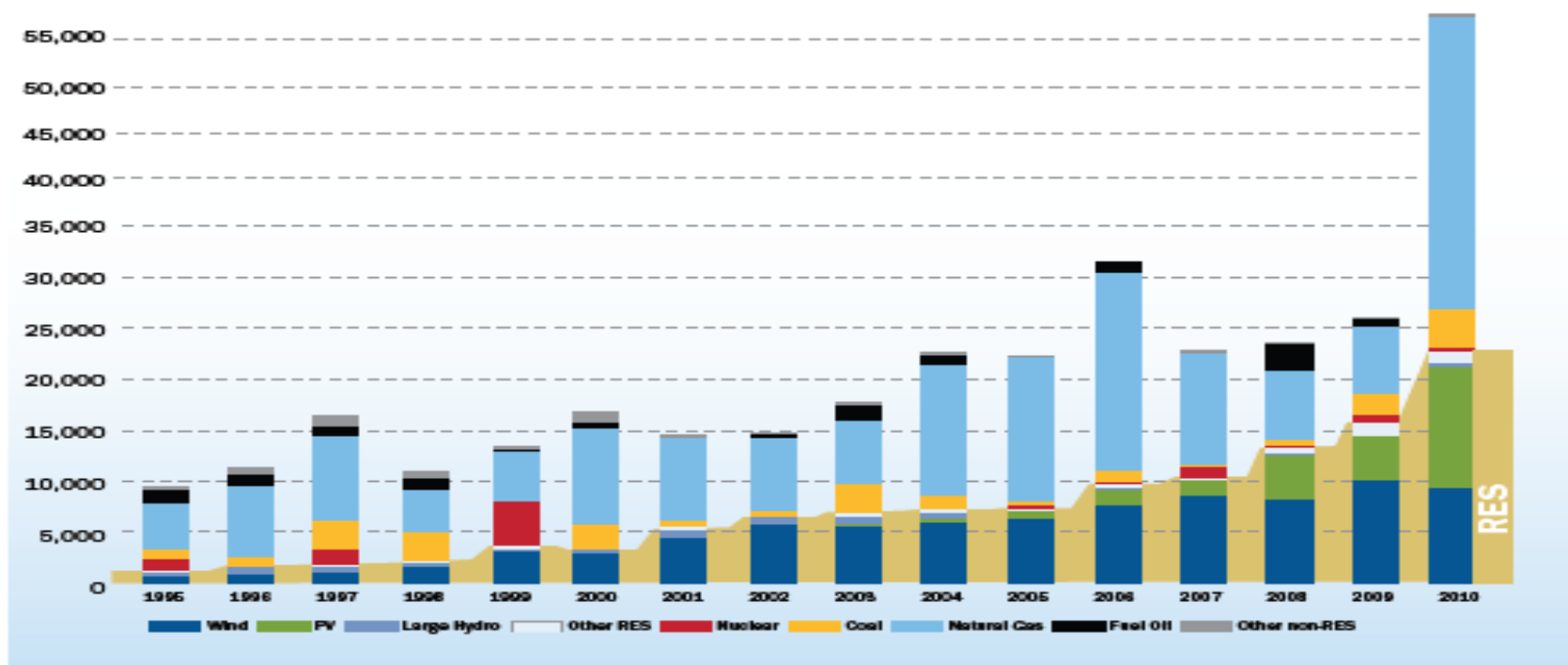
Europe's renewable energy sector 1997-2010

13

Renewable power installations continues to increase

- 1995: New renewable power installations totalled 14% of the total EU power installations, 2008: 57%, 2009: 63%

FIG 3: NEW INSTALLED CAPACITY PER YEAR 1995 - 2010 (MW)



Source: "EU Energy Policy to 2050. Achieving 80-95% emissions reductions", EWEA, March 2011

Challenges and Drivers

14

Electricity:

- Increasing demand
- Growing share of RES
- Smart grid applications
- Large-scale storage
- Higher voltage - long-distance transmission

Gas:

- Stable share, growing import dependency
- Role as back-up fuel – need for more flexibility
- Single-source dependency in Eastern Europe – need for diversification

CO2 transmission:

Co-ordinated planning for future optimised deployment

Oil:

Security of supply of land-locked countries in Central-Eastern Europe

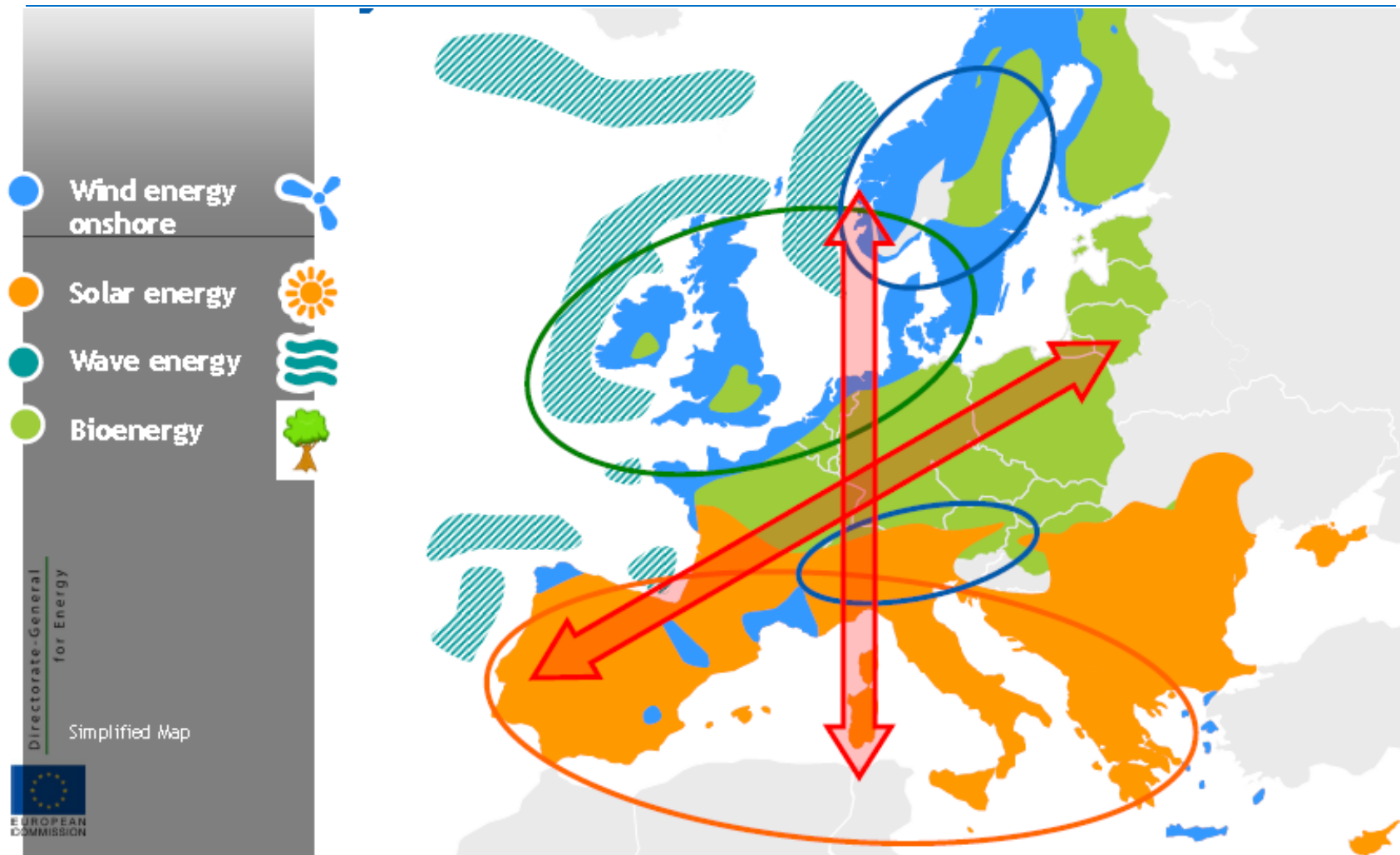
Energy Efficiency:

Modernization of district heating and cooling systems
Reduced demand

The European Challenge in Energy Transport



15



Obstacles in the energy policy development



16

- **Huge uncertainties:**
 - Future technologies,
 - Demand,
 - Generation of technology and
 - Sources.
- **Tariff regulation and financing:**
 - Projects with higher regional than national benefit: difficult cost allocation
 - Projects using innovative technologies - higher risks
 - Infrastructure for security of supply: often not justified by market demand
 - Financial crisis: difficult access to capitals .
- **Permitting and social acceptance**
- **Infrastructures external to the EU:**
 - Political risks such as unattractive or non-transparent investment framework

Renewable Energy Development

Some uncertainties

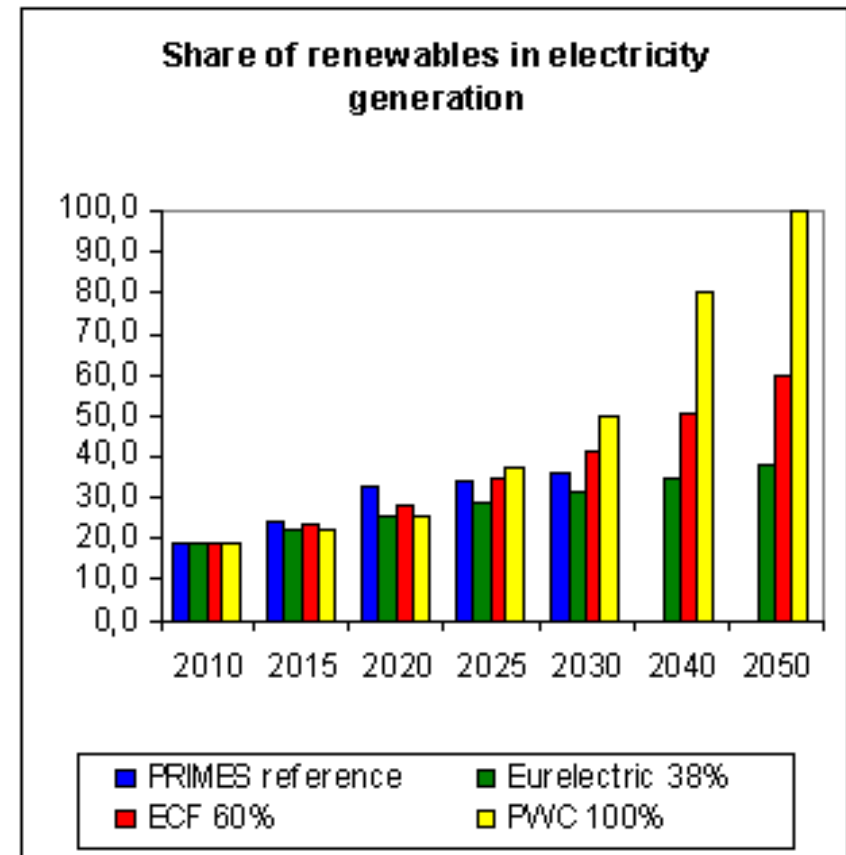


17

Tools to achieve the energy and climate targets

- Regulation and legislation
- Actions plans
- Research, development and demonstration of new technology

RES share scenarios (%)



Lessons learned - further improvements

18

- Balance between user pays (tariffs) beneficiary pays (compensation)
- Areas of action for the Regulators?
- Reduction of risks through innovative financial instruments (guarantees, equity participation) in co-operation with financing sector
- Financial support – where needed
- Effective cost allocation for complex projects (beneficiary pays principle)
- Greater transparency
 - Early involvement of stakeholders
 - Build public acceptance and knowledge
- Better communication in order to
 - Reduce permitting uncertainties
 - Knowledge on the technologies
- New financial instruments in cooperation with the financial sector
- Harmonization and standardization of technologies, compensation mechanism and permitting/approval procedures

The EU climate and energy package

19

Four pieces of complementary legislation proposed by the European Commission in January 2008 to implement the 20-20-20 targets (agreed by the European Parliament and Council in December 2008 and became law in June 2009)

- Revision and strengthening of the Emissions Trading System (ETS)
- An “Effort Sharing Decision” governing emissions from non-ETS sectors
- Binding national targets for renewable energy
- Legal framework to promote development and safe use of CCS

Energy efficiency is addressed through the EUs energy efficiency action plan

The 2009 Renewable Energy Directive

20

- **20% renewable energy by 2020 for the EU**
- **Comprises all energy consuming sectors (energy, agriculture, transportation, and buildings)**
- The Member States decide how to focus their efforts, however, they must ensure 10% renewable energy within transportation
- **Each Member State provided with differentiated legally binding national target**
- **National Renewable Energy Actions Plans (NREAPs)**
- Submitted to the European Commission in 2010
- EU-27 will exceed its target of meeting 20% of its gross final energy consumption from renewable sources by 2020

EU Energy Strategy 2011-2020

21

Presented by the EU Commission in October 2010

5 overall initiatives to secure a stable, secure and sustainable energy supply for all at affordable prices

- Obtaining an energy-efficient Europe
- A pan-European integrated energy market
- Enhancement of EUs leadership within energy technology
- Consumer protection
- Strengthening the external dimension of EUs energy policy

EU Energy Policy 2020-2050

22

Two elements of the post-2020 framework

- **EU Heads of State have agreed to reduce greenhouse gas emissions across the whole economy by 80-95% by 2050 compared to 1990 levels**

Seen from the power sector 2050 this is only one investment cycle away, which means decision makers must act today

Due to the long lifetime of fossil fuel power plants no new carbon emitting power plant should be built after 2015 to meet the commitment by Heads of State

- **The directive on the EU ETS will continue to reduce the emissions cap for the ETS sectors by 1.74% each year**



Thank you for your attention