

# NER 300

COMMISSION DECISION of [...] laying down criteria and measures for the financing of commercial demonstration projects that aim at the environmentally safe capture and geological storage of CO<sub>2</sub> as well as demonstration projects of innovative renewable energy technologies under the scheme for greenhouse gas emission allowance trading within the Community established by Directive 2003/87/EC of the European Parliament and of the Council

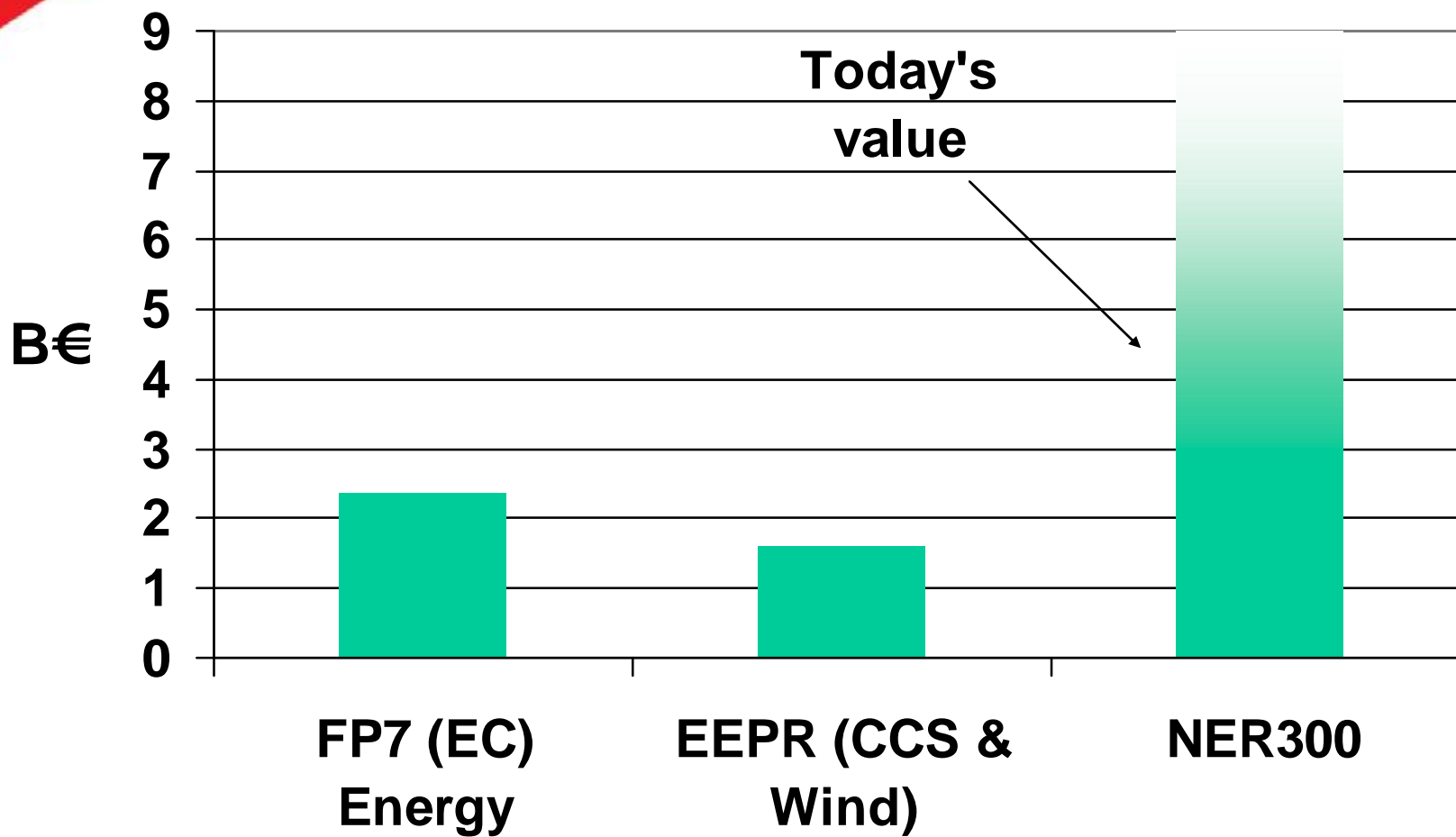
*Maria Velkova, DG Research  
Brussels, 15 July 2010  
ESTELA General Meeting and Workshop*



## Subject Matter

- Ø In revised ETS directive (2009/29/EC)
  - Ø 300 M EUA (Million EU Emission Allowances)
  - Ø Of the New Entrants Reserve (NER)
  - Ø Available until 31 December 2015
  - Ø To support demonstration projects in CCS and innovative Renewables
  - Ø Development of a wide range of technologies
  - Ø In geographically balanced locations in the territory of the Union
  - Ø Award dependent upon the verified avoidance of CO<sub>2</sub> emissions
- Ø European Commission to develop criteria and modalities for project selection through comitology decision (NER 300 Decision)

# Financial Resources



# Which Technologies?

## Ø CCS & Innovative RES

### Ø Technology

- Ø Directly producing energy (electricity, heat and/or fuel)
- Ø Requiring large scale demonstration

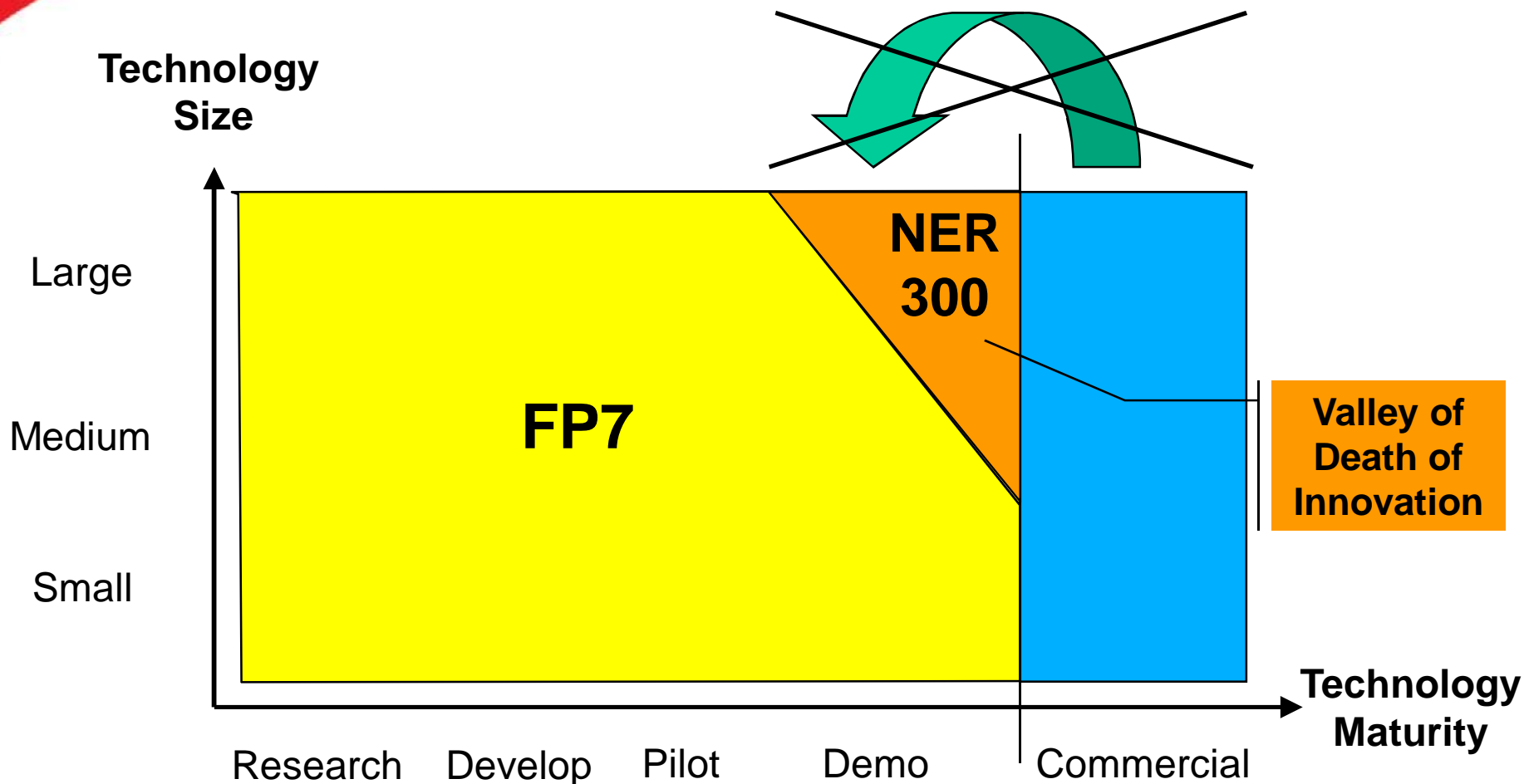
### Ø Maturity

- Ø Not yet commercially available, but
- Ø Sufficiently mature for demonstration at pre-commercial scale

### Ø Scale

- Ø Such that no significant additional problems are to be expected from further scaling up

# FP7 & NER300 – Technology Development Cycle Coverage



# Technology Balance (1)

Ø Basic Projects portfolio: 8 CCS & 34 RES Projects

Ø 8 CCS projects, of which:

Ø Min 1 Max 3 in the following categories: pre-combustion, post-combustion, oxy-fuel and industrial applications

Ø Min 3 with saline aquifers & Min 3 with depleted hydrocarbons reservoirs

Ø Min size threshold: 250 MW

Ø Min capture efficiency: 85%

## Technology Balance (2)

Ø Basic Projects portfolio: 8 CCS & 34 RES Projects

Ø 34 RES projects, of which:

Ø 9 Bio-energy

Ø 5 CSP

Ø 3 PV

Ø 6 Wind

Ø 4 Geothermal

Ø 3 Ocean

Ø 1 Hydro

Ø 3 Distributed Renewables Management (SmartGrids)

# Geographical Balance

- ∅ Min 1, Max 3 projects per Member State
- ∅ Transboundary projects not included in the counting
- ∅ If a MS has more than 3 potentially winning projects, MS decides which 3 to support

# Minimum Thresholds

- Ø Why? To guarantee the pre-commercial relevance of all selected projects
- Ø Should a MS not be in a position to submit projects in any sub-category which meet the minimum size thresholds, than projects submitted by that MS below the size thresholds become eligible.
- Ø But no maximum thresholds

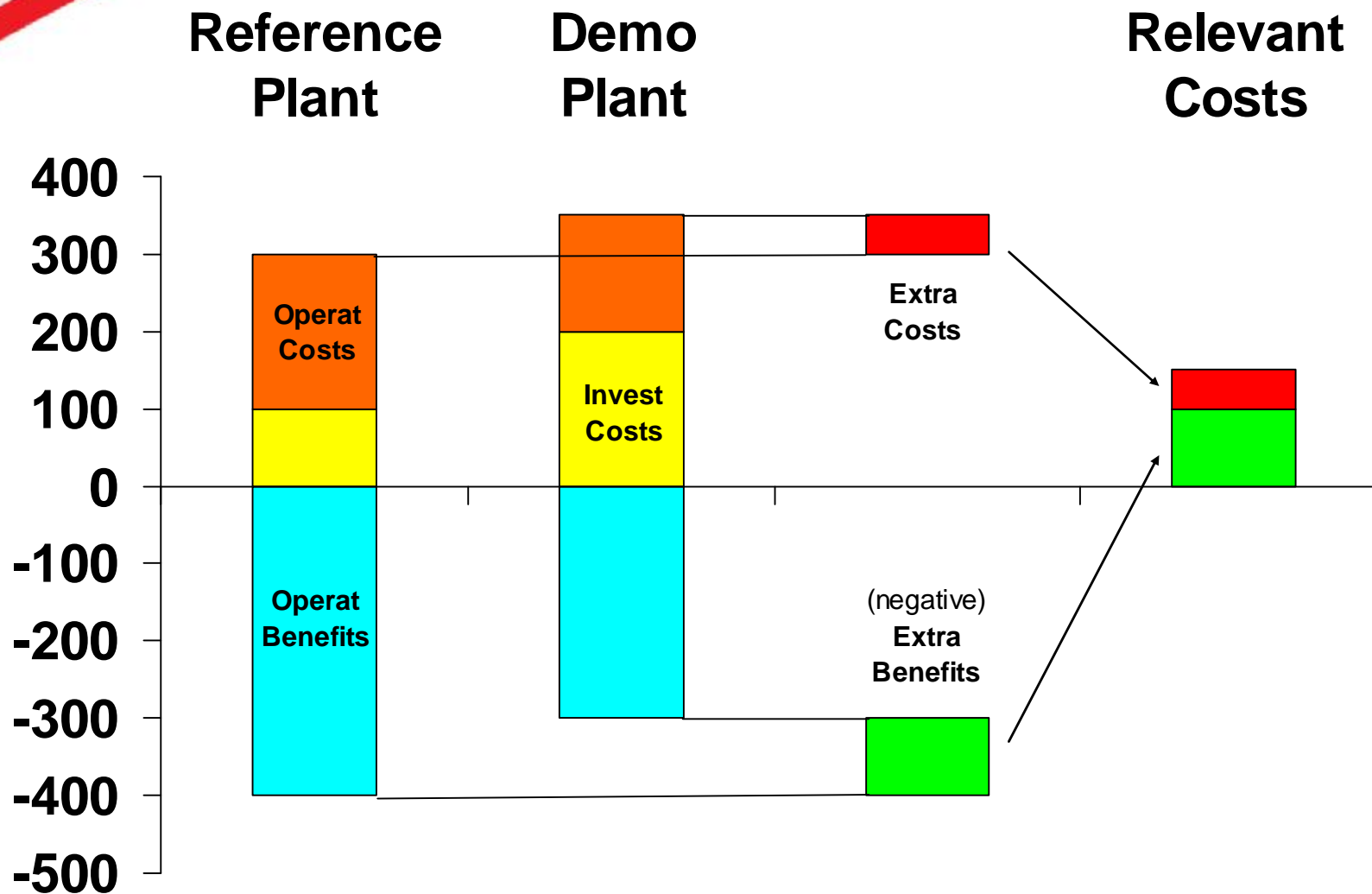
## Ø Definition of Relevant Costs

- + Extra\* investment costs
- + Extra\* operating costs (NPV over 5 years, best estimate)
- Extra\* operating benefits (NPV over 5 years, best estimate)

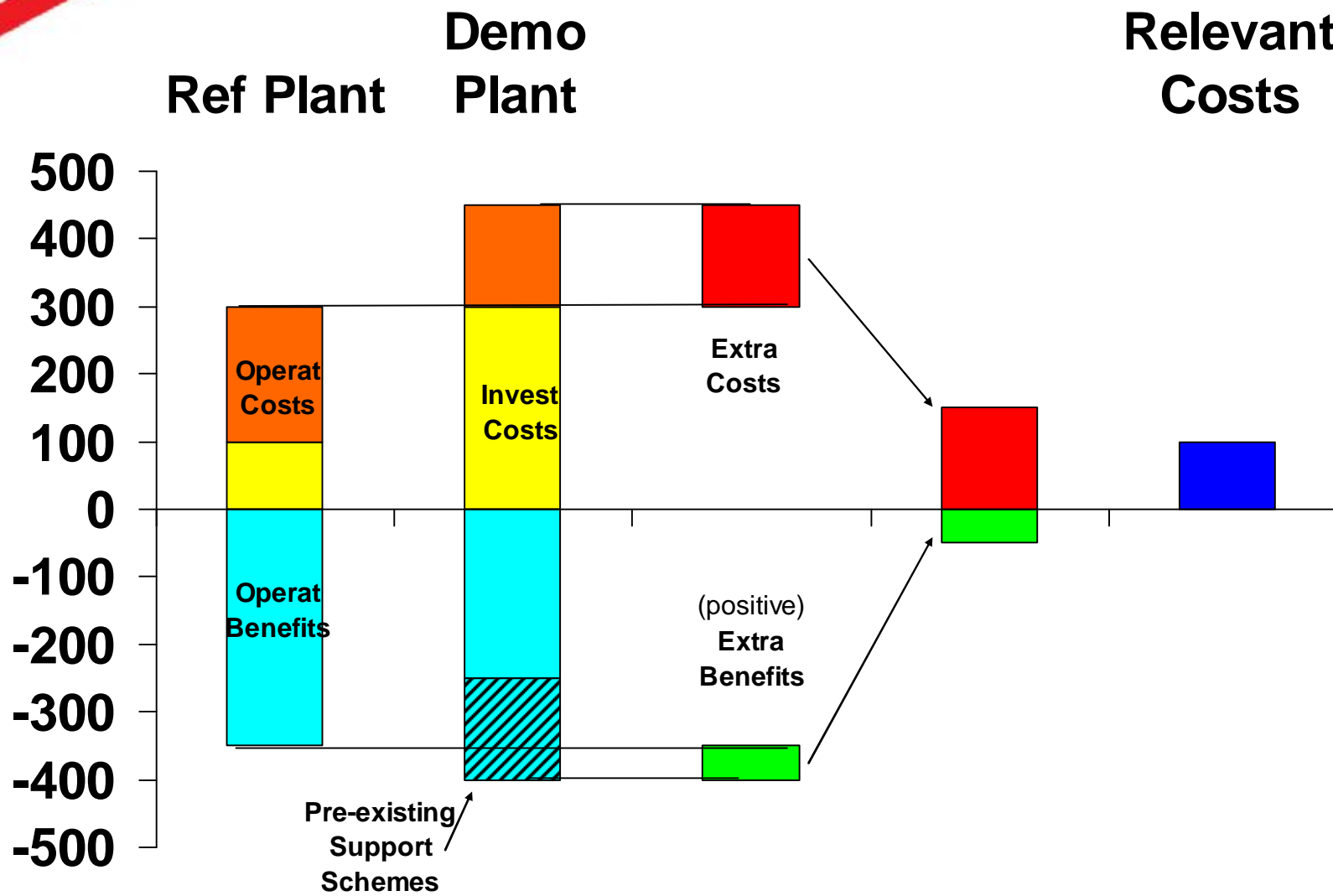
(which include pre-existing support schemes, being them State aid or not)

\* compared to a conventional production with the same capacity in terms of effective production of energy

# Definition of RELEVANT COSTS (1)



# Definition of RELEVANT COSTS (2)

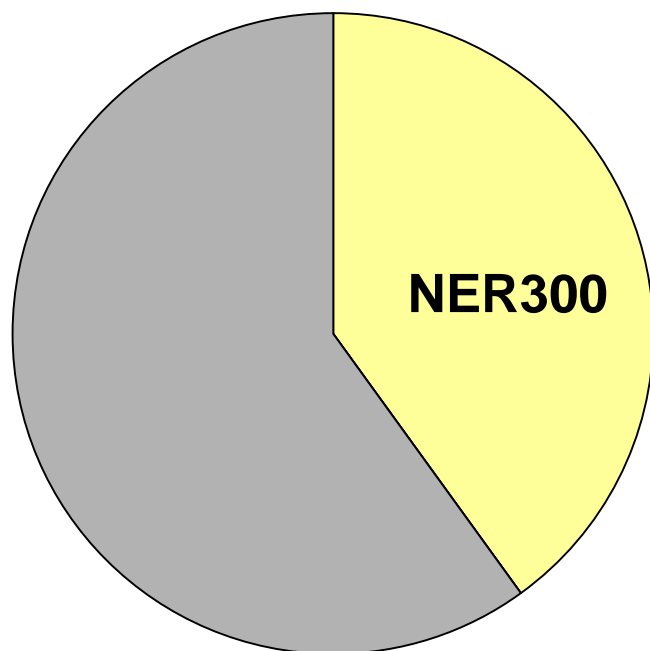


## Financing (2)

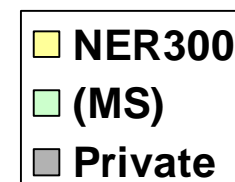
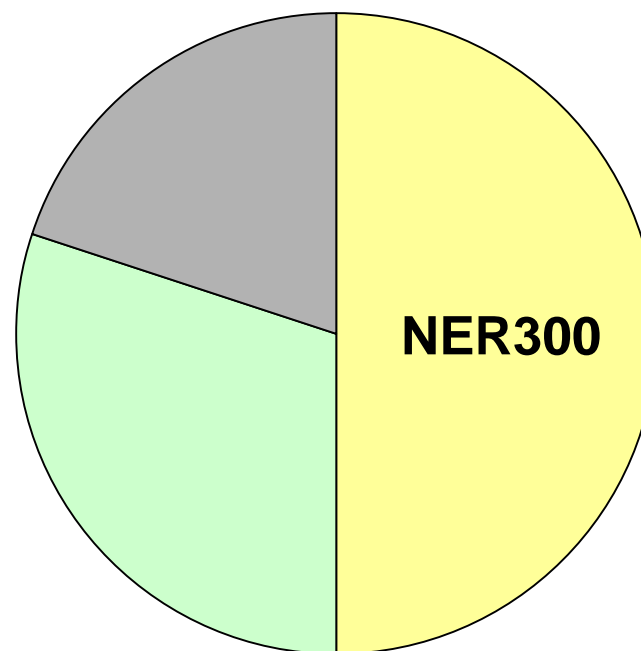
- Ø **NER300 (+EEPR) will finance 50% of the relevant costs** except where the promoter provides more than 50%, in which case the NER contribution will be reduced accordingly.
- Ø No project to be co-financed with more than 45 M EUA
- Ø The remainder can be financed by the project promoter, the MS concerned, or a combination of the two
- Ø Financing under NER300 can be combined with **Structural Funds, EEPR and RSFF**

# NER300 Co-Financing

Case 1



Case 2\*



\* Maximum aid intensities:

60% large, 70% medium and 80% for small enterprises

# Projects Selection

- Ø Each MS evaluates **eligibility criteria**
  - Ø compliance with minimum technical requirements
  - Ø innovative nature
- Ø and decides which projects to pass for next selection step
- Ø EIB performs **financial and technical due diligence**

Ø Ranking of projects based on cost per unit of performance

Ø Level of innovation not used in the ranking

Ø Cost =

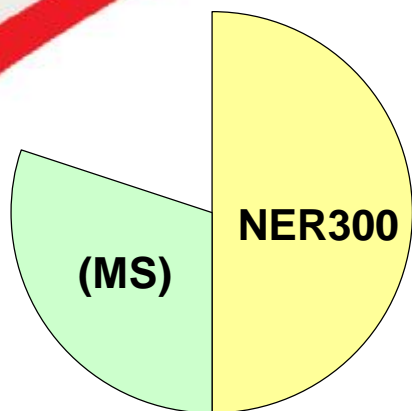
+ total request public funding (relevant cost – operator's contribution)

+ best estimate of NPV of additional benefits from support schemes

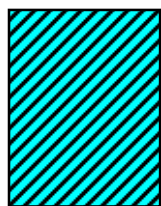
Ø All CCS projects are ranked as a single group, and then additional portfolio criteria are applied.

Ø RES projects are ranked within each of the 34 sub-category

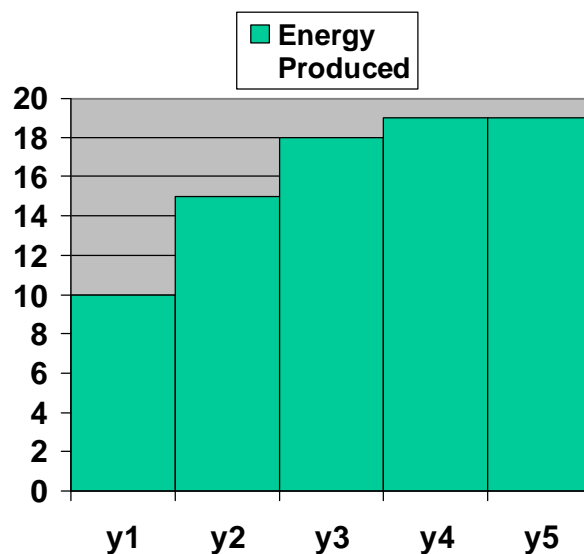
# Costs per unit performance



+



Pre-existing  
Support  
Schemes

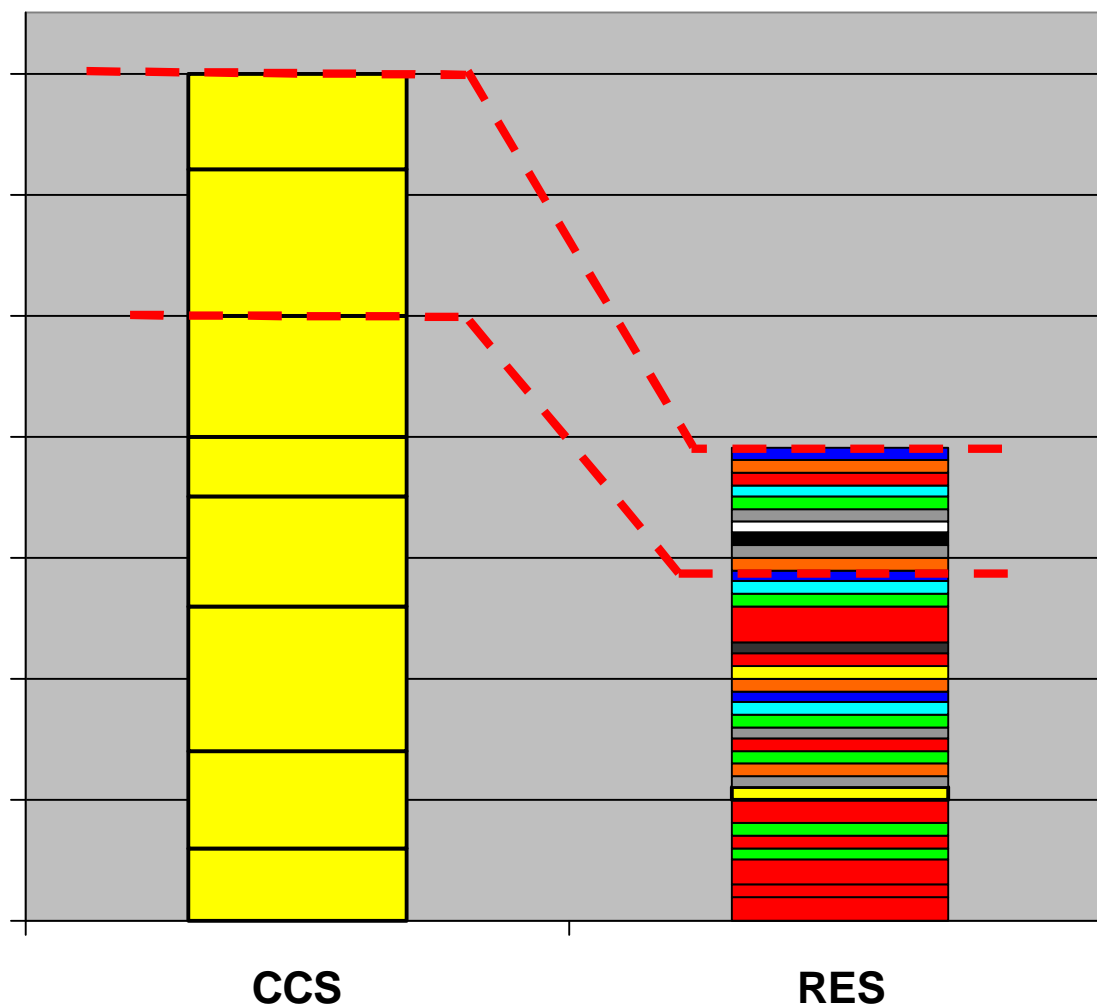


=

“Cost”  
per  
(projected)  
Unit  
Performance

# Approach to Portfolio Reduction

If sufficient funds are not available, the CCS portfolio and RES portfolio are reduced proportionally, maintaining the same funding proportionality between the two portfolios



## Financing (3)

- Ø **Payments:** Financing to be disbursed on a **yearly basis during operation**, as a function of the amount of CO<sub>2</sub> stored (CCS, 10 years) or of energy produced (RES, 5 years)
  - Ø **No pre-financing**, unless the MS concerned is ready to guarantee that funds will be returned to EIB in case of failure
  - Ø **No financial penalty** if projects achieve at least 75% of projected total amount of CO<sub>2</sub> stored or energy produced

# Provisional Timing

## Ø NER300 Decision

Ø 2 Feb 2010 - Approved by Climate Change Committee

Ø May 2010 - Parliament scrutiny

Ø Early summer 2010 - Formal Adoption by Commission

## Ø 1st Call (200 M EUA)

Ø 3rd quarter 2010 - Publication

Ø 4th quarter 2010 - Deadline for submission to MS

Ø 1st quarter 2011 - Deadline for submission to EIB

Ø 31 Dec 2011 - Deadline for Award Decision

Ø 31 December 2015 – entry into operation of projects of 1st Call

## Ø 2nd Call (100 M EUA)

Ø 31 Dec 2013 - Deadline for Award Decision

## Role of Member States

- ∅ To collect proposals for projects intended to take place in their territories
- ∅ To assess proposals eligibility criteria
- ∅ To submit proposals to EIB
- ∅ To confirm interest and support in their projects after assessment by EIB
- ∅ To sign grant agreements with the selected projects
- ∅ To monitor projects implementation, and to disburse the grant subject to the achieved project performance and agreed level of knowledge sharing
- ∅ In case of pre-financing, to guarantee that funds will be returned to EIB in case of projects non-performance

## Role of EIB

- ∅ To convert the allowances, manage the revenues and pass them to the relevant Member States
  - ∅ Surplus after disbursement goes back to MS
  
- ∅ To perform technical and financial due diligence on all the projects submitted by MS
  
- ∅ To prepare the rankings, and make recommendations to the Commission for the award decision.
  
- ∅ Details elaborated in inter-institutional agreement COM - EIB

# Role of Commission

- Ø To publish the calls
- Ø To assess State Aid compatibility of the public co-funding
- Ø To take award decisions
  - Ø based on recommendation from EIB, and
  - Ø after re-consultation of MS and Climate Change Committee

# Renewables Categories

## BIO-Energy (1)

- Lignocellulose **to** intermediate solid, liquid or slurry bioenergy carriers **via** pyrolysis with capacity 40 kt/y (kilo tonnes per year) of the final product
- Lignocellulose **to** intermediate solid, liquid or slurry bioenergy carriers **via** torrefaction with capacity 40 kt/y (kilo tonnes per year) of the final product
- Lignocellulose **to** Synthetic Gas and/ or to power **via** gasification with capacity 40 M Nm<sup>3</sup>/y (million normal cubic metres per year) of the final product or 100 GWh/y of electricity.
- Lignocellulose **to** biofuels or bioliquids and/or to power **via** directly heated gasification with capacity 15 Ml/y (M litres per year) of the final product or 100 GWh/y of electricity. Production of Synthetic Natural Gas is excluded under this sub-category
- Lignocellulosic raw material, e.g. black liquor and/ or products from pyrolysis or torrefaction, **via** entrained flow gasification **to** any biofuels with capacity 40 Ml/y of the final product

## BIO-Energy (2)

- Lignocellulose **to** electricity with 48% efficiency based on lower heating value (50% moisture) with capacity 40 MWe or higher
- Lignocellulose **to** ethanol and higher alcohols **via** chemical and biological processes with capacity 40 MI/y (million litres per year) of the final product
- Lignocellulose and/ or household waste **to** biogas, biofuels or bioliquids **via** chemical and biological processes with capacity 6 mio Nm<sup>3</sup>/y (million normal cubic metres per year of Methane) or 10 MI/y (million litres per year) of the final product
- Algae and/or micro-organisms **to** biofuels or bioliquids **via** biological and/or chemical processes with capacity 40 MI/y (million litres per year) of the final product

*NOTE: sustainability criteria as stipulated in Directive 2009/28/EC on the promotion of the use of energy from renewable sources shall be met for biofuels and bioliquids. Biofuels and bioliquids are defined in the aforementioned Directive.*

# Concentrated solar power

- **Parabolic trough or Fresnel system using molten salts of other environmentally-benign heat transfer fluid with nominal capacity 30 MW**
- **Parabolic trough or Fresnel system based on Direct Steam Generation with nominal capacity 30 MW. Direct steam solar temperature to be above 500°C**
- **Tower system using superheated steam cycle (either multi-tower or combination linear collectors - tower) with nominal capacity 50 MW**
- **Tower system using pressurised air with temperature above 750°C and solar hybrid gas turbine with nominal capacity 30 MW**
- **Large-scale Stirling dish power plants with solar to electric efficiency of over 20% and nominal capacity of at least 25 MW**

*NOTE: Dry cooling, hybridization and (advanced) heat storage solution can be included in the demonstration plants.*

# Photovoltaics

- Large-scale concentrator photovoltaics power plants with nominal capacity 20 MW
- Large scale multi-junction Si-thin-film photovoltaics power plants with nominal capacity 40 MW
- Large scale CIGS-based photovoltaics power plants with nominal capacity 40 MW

# Geothermal

- **Enhanced geothermal systems in tensional stress fields with nominal capacity 5 MWe**
- **Enhanced geothermal systems in compressional stress fields with nominal capacity 5 MWe**
- **Enhanced geothermal systems in areas with deep compact sedimentary and granite rocks and other crystalline structures with nominal capacity 5 MWe**
- **Enhanced geothermal systems in deep limestone with nominal capacity 5 MWe**

*NOTE: CHP applications with the same electricity thresholds are equally eligible*

- Off-shore wind (minimum turbines size 6 MW) with nominal capacity 40 MW
- Off-shore wind (minimum turbines size 8 MW) with nominal capacity 40 MW
- Off-shore wind (minimum turbines size 10 MW) with nominal capacity 40 MW
- **Floating off-shore** wind systems with nominal capacity 25 MW
- On-shore wind turbines optimised for **complex terrains** (e.g. forested terrains, mountainous areas): with nominal capacity 25 MW
- On-shore wind turbines optimised for **cold climates** (compatible with temperature lower than  $-30^{\circ}\text{C}$  and severe icing conditions) with nominal capacity 25 MW

- **Wave energy** devices with nominal capacity 5 MW
- **Marine/tidal currents** energy devices with nominal capacity 5 MW
- **Ocean thermal energy conversion (OTEC)** with nominal capacity 10 MW

# Hydropower

- Power generation with **High Temperature Superconducting Generators: 20 MW**

# Distributed Renewable Management (Smart Grids)

- Renewable energy management and optimisation for small and medium scale Distributed Generators in rural environment with predominant solar generation: 20 MW on Low Voltage (LV) network + 50 MW on Medium Voltage (MV) network
- Renewable energy management and optimisation for small and medium scale Distributed Generators in rural environment with predominant wind generation: 20 MW on LV network + 50 MW on MV network
- Renewable energy management and optimisation for small and medium scale Distributed Generators in urban environment: 20 MW on LV network + 50 MW on MV network

*NOTE: The use of active loads (electric heaters/heat pumps etc) is not excluded.*

**Thank you for your attention !**