

# NER 300

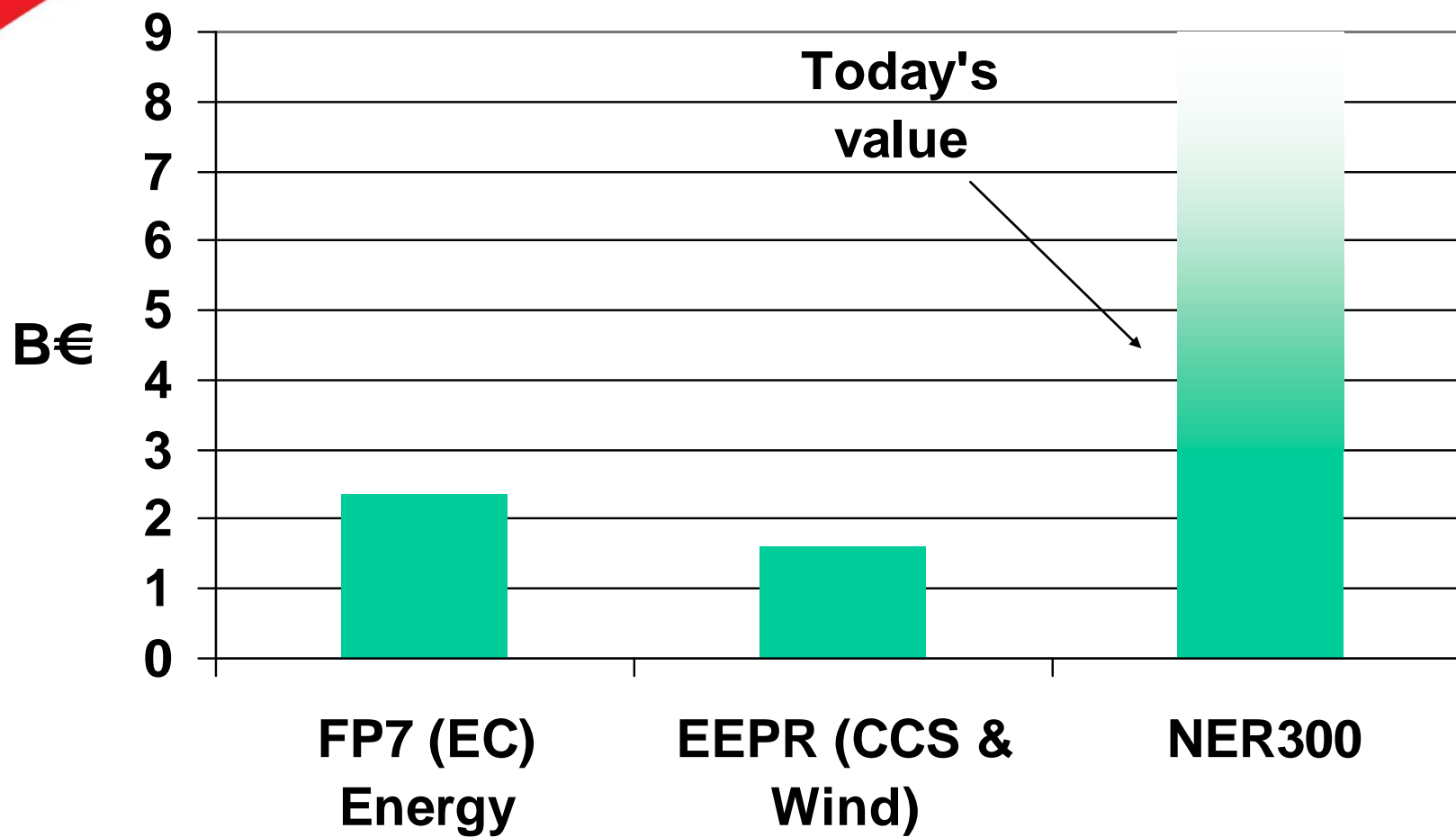
COMMISSION DECISION laying down criteria and measures for the financing of commercial demonstration projects that aim at the environmentally safe capture and geological storage of CO<sub>2</sub> as well as demonstration projects of innovative renewable energy technologies under the scheme for greenhouse 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  
AEBIOM Workshop*



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

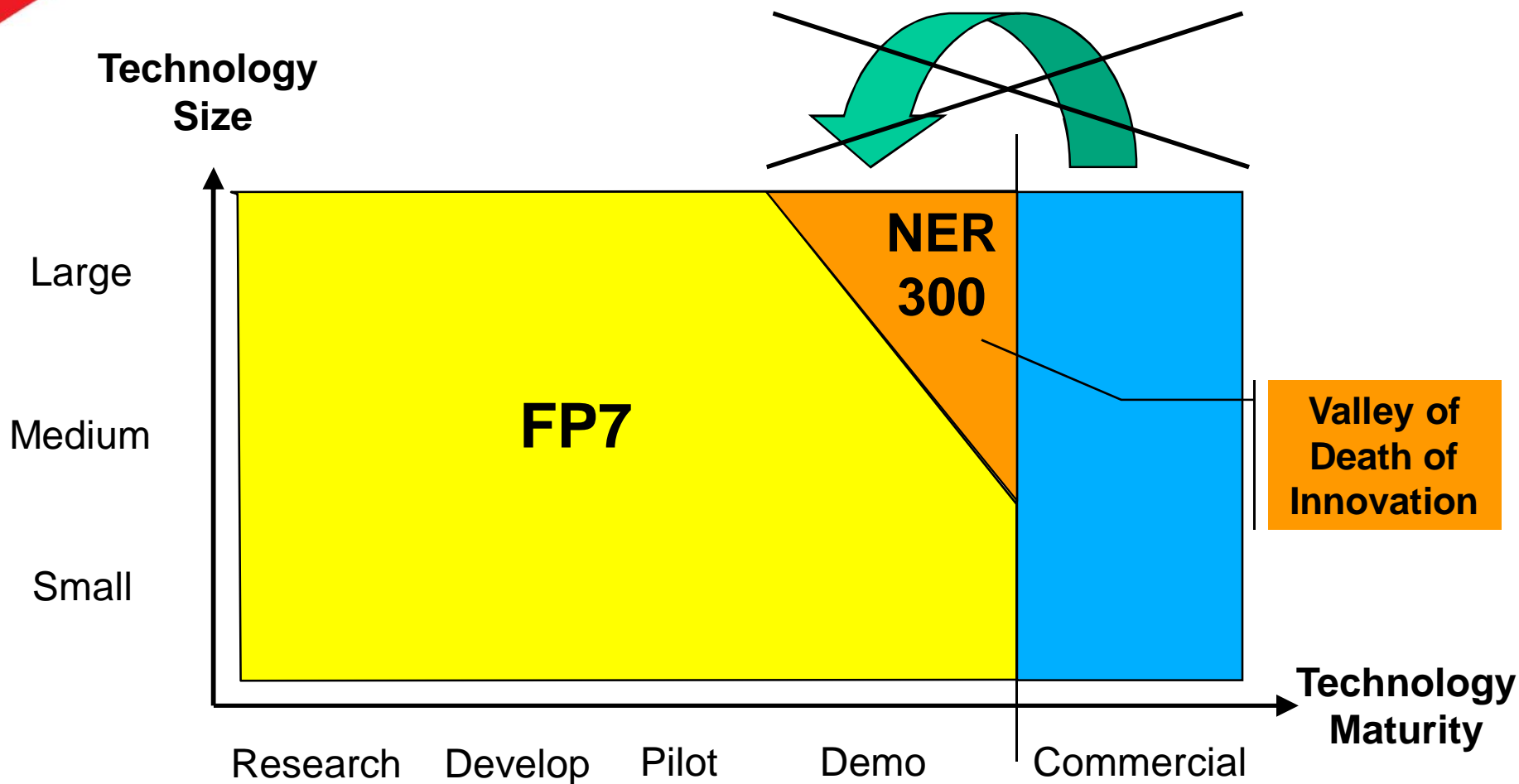
# Financial Resources



# Which Technologies?

- CCS & Innovative RES
- Technology
  - Directly producing energy (electricity, heat and/or fuel)
  - Requiring large scale demonstration
- Maturity
  - Not yet commercially available, but
  - Sufficiently mature for demonstration at pre-commercial scale
- Scale
  - Such that no significant additional problems are to be expected from further scaling up

# FP7 & NER300 – Technology Development Cycle Coverage



# Technology Balance (1)

- Basic Projects portfolio: 8 CCS & 34 RES Projects
  - 8 CCS projects, of which:
    - Min 1 Max 3 in the following categories: pre-combustion, post-combustion, oxy-fuel and industrial applications
    - Min 3 with saline aquifers & Min 3 with depleted hydrocarbons reservoirs
    - Min size threshold: 250 MW
    - Min capture efficiency: 85%

## Technology Balance (2)

- Basic Projects portfolio: 8 CCS & 34 RES Projects
  - 34 RES projects, of which:
    - 9 Bio-energy
    - 5 CSP
    - 3 PV
    - 6 Wind
    - 4 Geothermal
    - 3 Ocean
    - 1 Hydro
    - 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

- Why? To guarantee the pre-commercial relevance of all selected projects
- 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.
- But no maximum thresholds

# Financing (1)

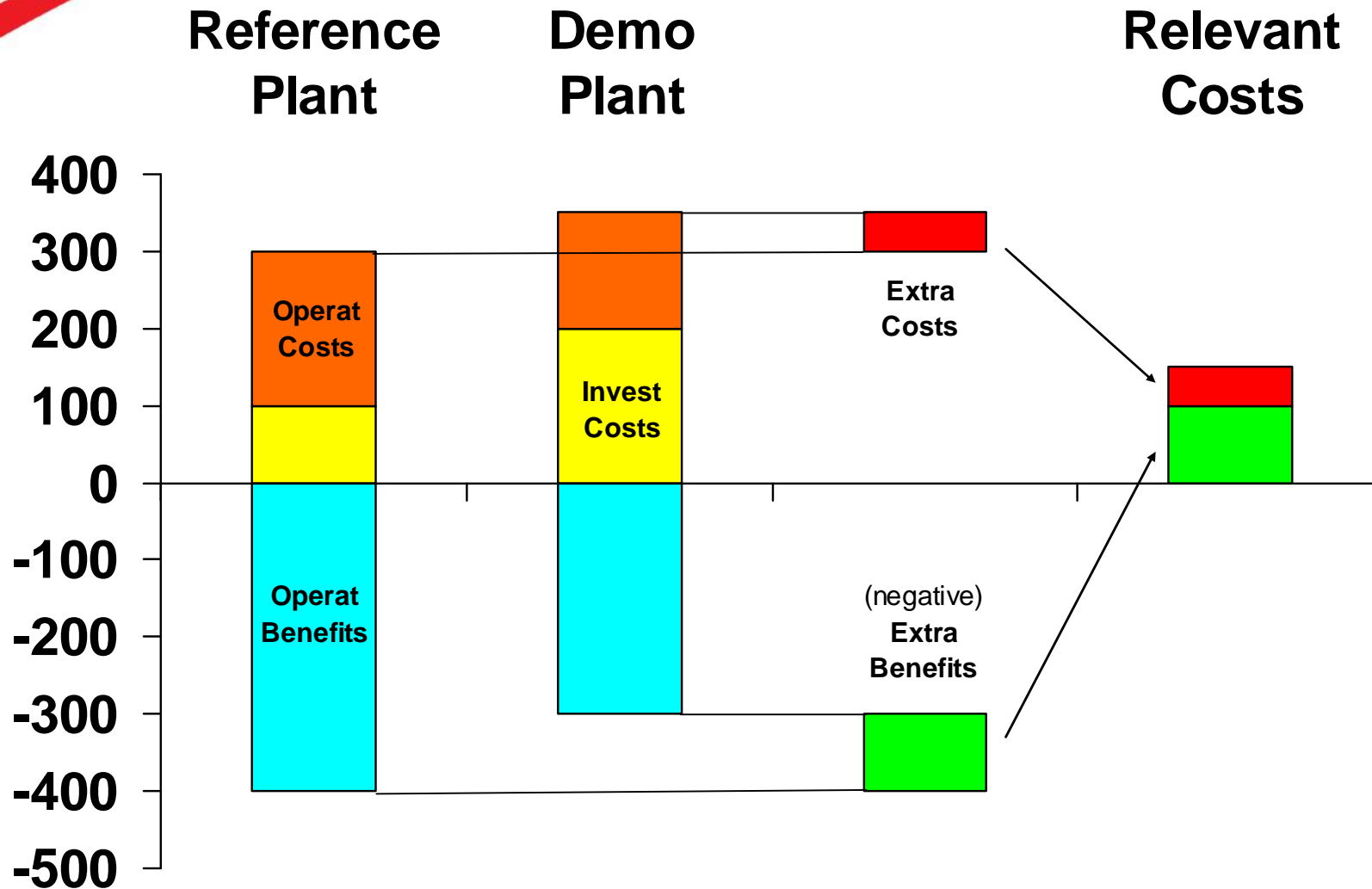
## ➤ Definition of Relevant Costs

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

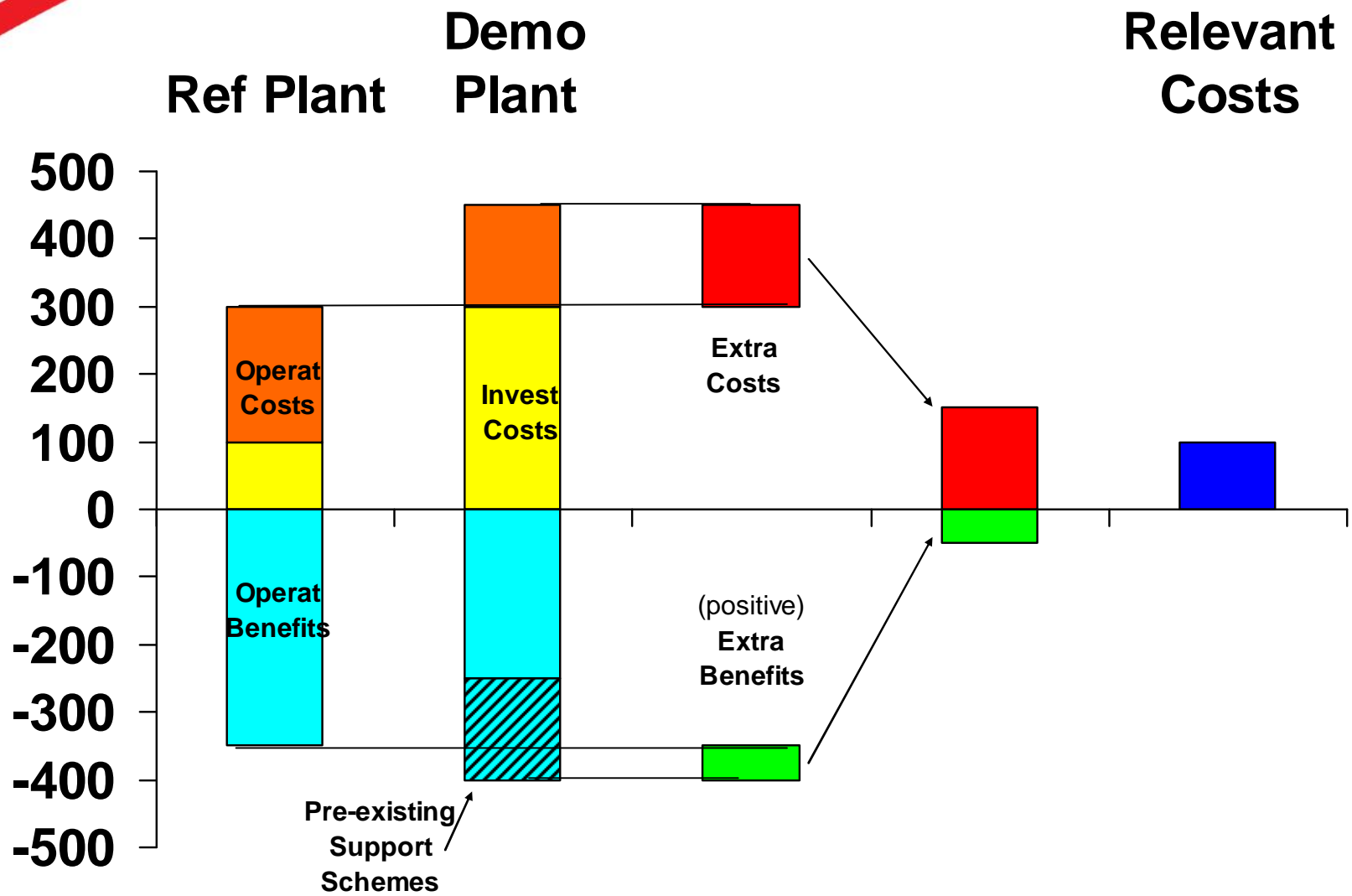
(which include pre-existing support schemes, being them State aid or not)

\* 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)

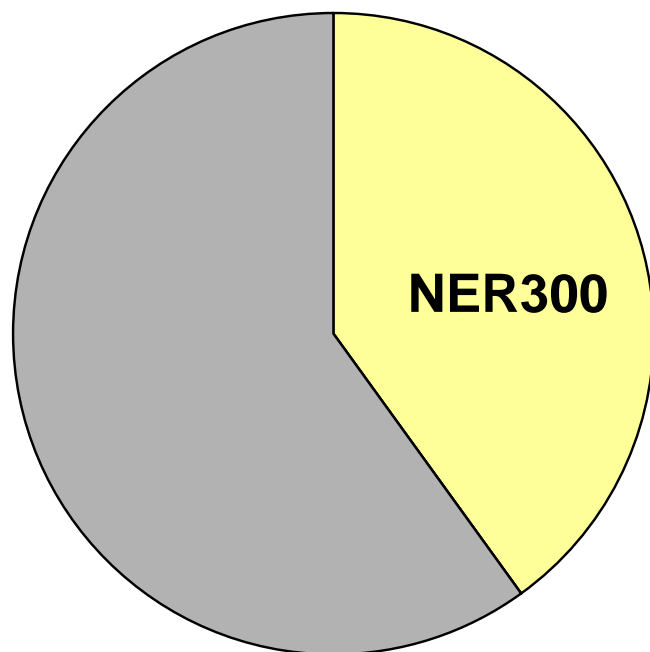


## Financing (2)

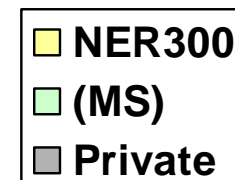
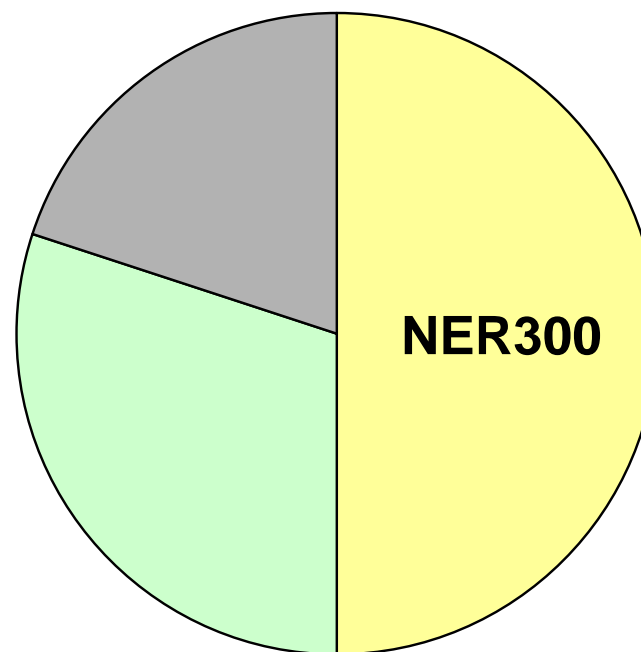
- NER300 (+EEPR) will finance 50% of the relevant costs except where the promoter provides more than 50%, in which case the NER contribution will be reduced accordingly.
- No project to be co-financed with more than 45 M EUA
- The remainder can be financed by the project promoter, the MS concerned, or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

# NER300 Co-Financing

**Case 1**



**Case 2\***



\* Maximum aid intensities:

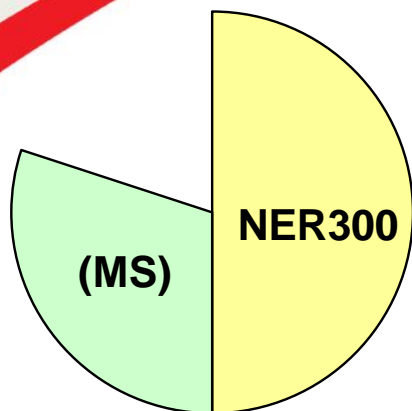
60% large, 70% medium and 80% for small enterprises

# Projects Selection

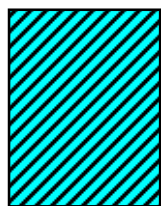
- Each MS evaluates eligibility criteria
  - compliance with minimum technical requirements
  - innovative nature
- and decides which projects to pass for next selection step
- EIB performs financial and technical due diligence

- Ranking of projects based on cost per unit of performance
  - Level of innovation not used in the ranking
- Cost =
  - + total request public funding (relevant cost – operator's contribution)
  - + best estimate of NPV of additional benefits from support schemes
- All CCS projects are ranked as a single group, and then additional portfolio criteria are applied.
- RES projects are ranked within each of the 34 sub-category

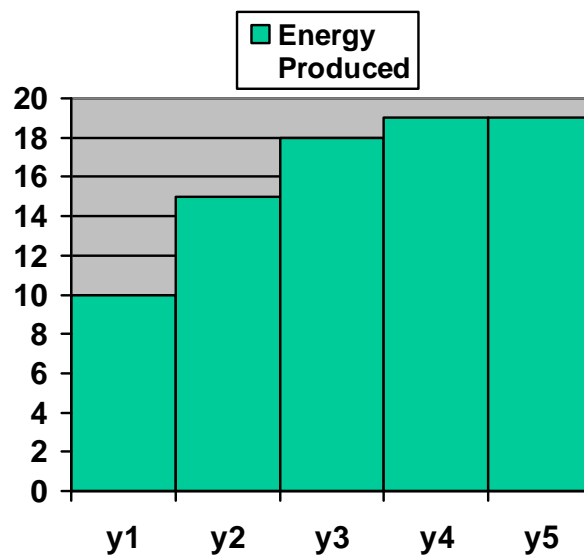
# Costs per unit performance



+



Pre-existing  
Support  
Schemes

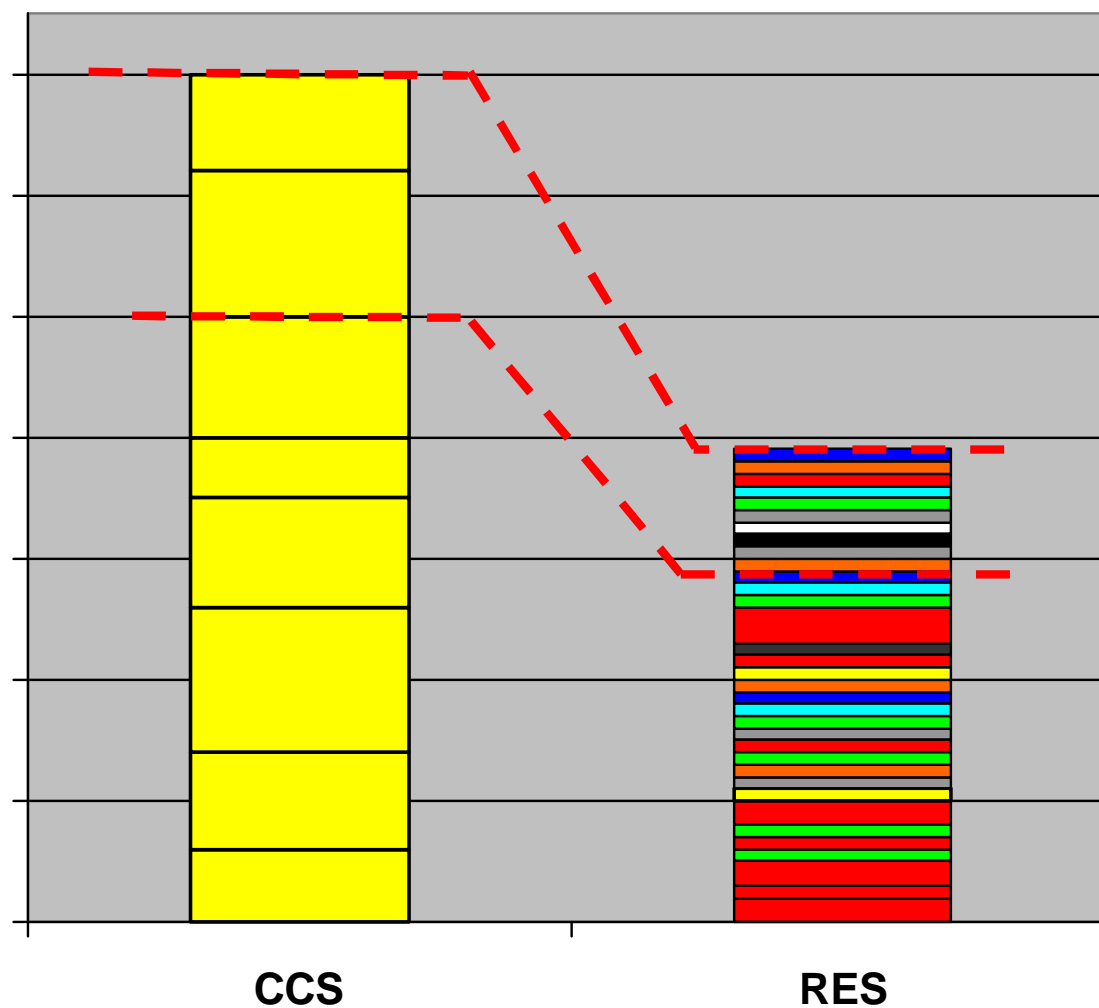


=

“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)

- 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)
  - No pre-financing, unless the MS concerned is ready to guarantee that funds will be returned to EIB in case of failure
  - No financial penalty if projects achieve at least 75% of projected total amount of CO<sub>2</sub> stored or energy produced

## Timing

Action	Date
Launch of 1 <sup>st</sup> Call for Proposal (LCP1)	Autumn 2010
Submission to MS	LCP1 + 3 months
Submission to EIB	LCP1 + 6 months
Award Decision	End 2011
Launch of 2 <sup>nd</sup> Call for Proposal	2012

# 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

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



EUROPEAN  
COMMISSION

European  
Research Area

# 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 liner 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.*



EUROPEAN  
COMMISSION

European  
Research Area

Thank you for your attention !