



The EERA

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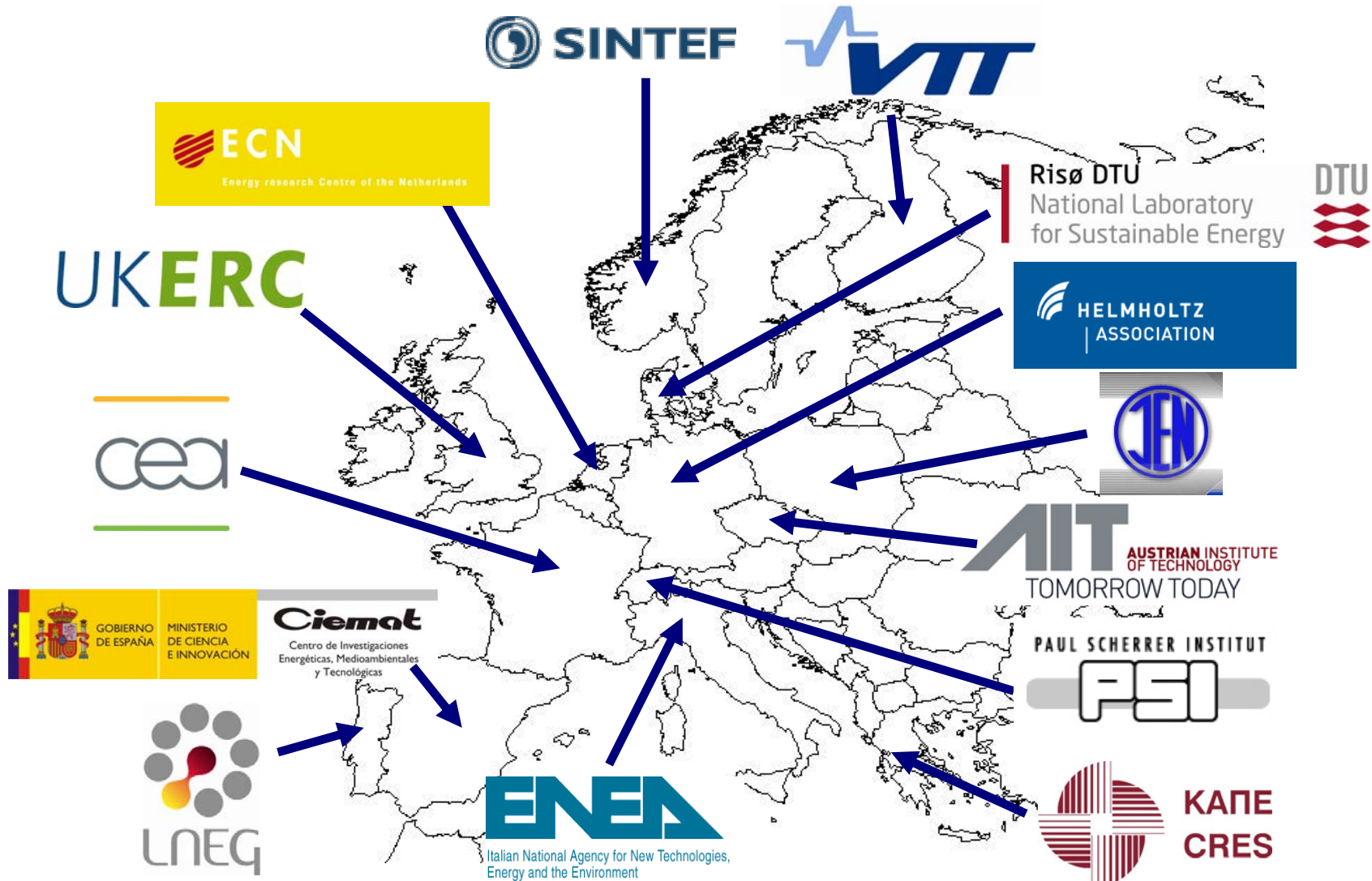
Brussels, 5th of March 2010

www.eera-set.eu

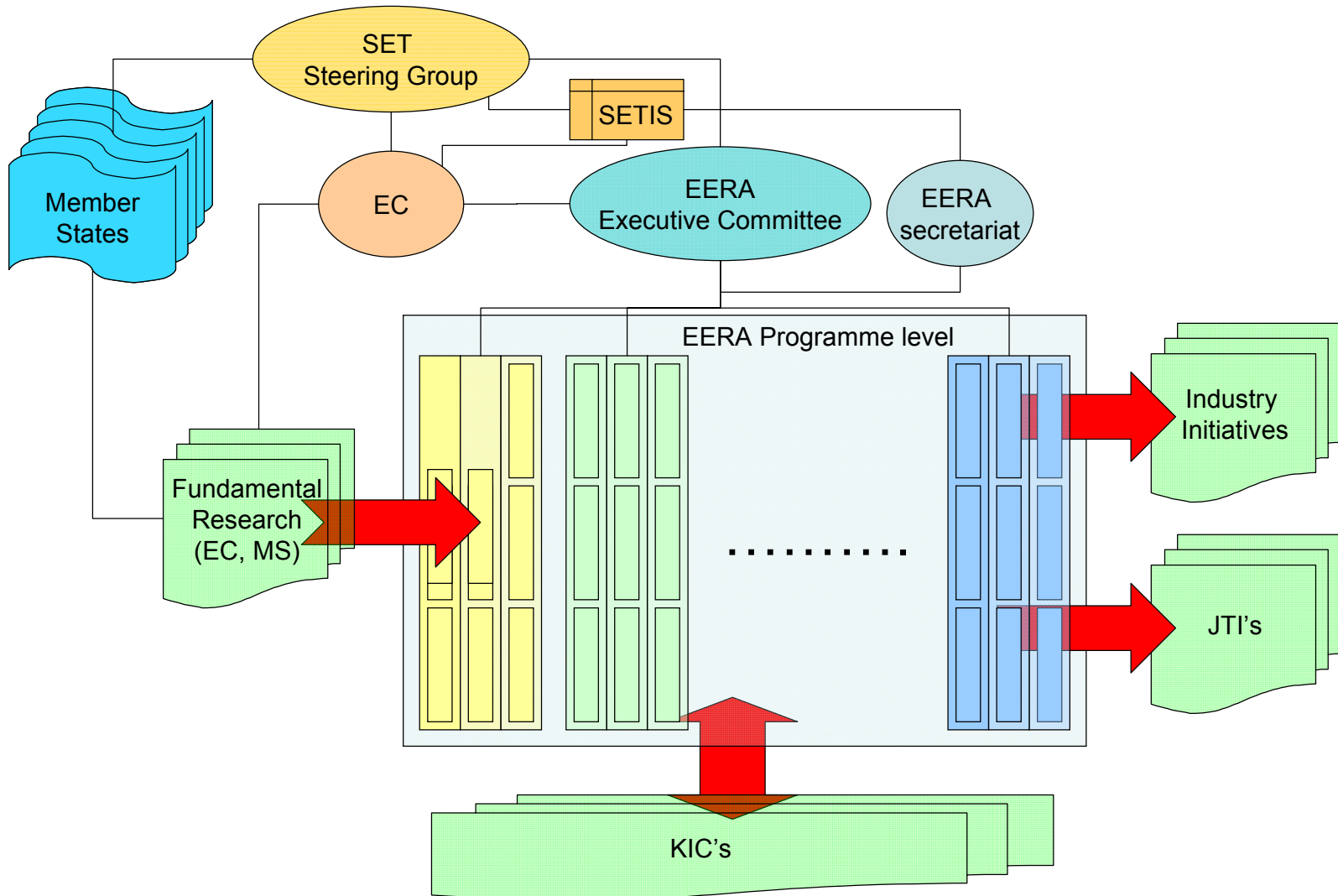
About the EERA

- Aim: accelerate development of new energy technologies
 - Harmonisation of national and EC programmes, decrease fragmentation
 - Strengthen, expand and optimise research capabilities
 - Draw on results from fundamental research
 - Mature technologies to hand over to industry driven research (industry groupings)
 - Build upon well accepted Strategic Research Agenda (SRA)
 - Link to Industry Initiatives
- Create virtual Centres of Excellence
- Recent developments
 - Implementation governance structure
 - Prepare first joint programmes for launch
 - International cooperation (US, Japan)

EERA Governance



Link to other bodies



EERA Joint Programmes

- First four Joint Programmes have been developed
 - PV, Wind, Geothermal energy, Smart Grids
 - Approved by Executive Committee (January 2010)
 - Official launch: March / April 2010
 - Depending on availability Commissioner(s) etc.
- Other programmes will follow (under preparation)
 - Materials for nuclear
 - CCS
 - CSP
 - Bio energy
 - Fuel cells (and hydrogen?)
 - Smart Cities
 - Etc.

EERA Joint Programmes

- Total resources committed impressive
 - PV: ≈ 1000 person months / year (pm/y)
 - Wind: ≈ 1500 (pm/y)
 - Geothermal energy: ≈ 3000 (pm/y)
 - Smart Grids: ≈ 650 (pm/y)
 - Note: still start up phase (!)
- Note: programmes open to all (public) research organisations that can provide relevant contribution
 - Full member: threshold (person years / year)
 - Otherwise: associated partnership
 - New players may (and will!) enter
- Links with EII being established
 - CCS, Smart Grids, PV, Wind etc.

- Many partners all across Europe (full & associated)
 - **PV:** ECN (the Netherlands –coordinator) AIT (Austria), CEA-INES (France), CIEMAT (Spain), CRES (Greece), CREST (UK), EMPA (Switzerland), ENEA (Italy), EPFL (Switzerland), FhG-ISE / ISET (Germany), Fyzikalni ustav Akademie ved Ceske republiky (Czech Republic), FZ Juelich (Germany), HZB (Germany), IMEC (Belgium), Imperial College (UK), IPP (Germany), JRC, LNEG (Portugal), Risø/DTU (Denmark), SINTEF (Norway), University of Gent (Belgium), University of Ljubljana (Slovenia), VTT (Finland), ZSW (Germany)
 - **Wind:** Risø DTU (Denmark – coordinator), ECN (the Netherlands), CRES (Greece), CENER (Spain), CIEMAT (Spain), FhG IWES (Germany), LNEG (Portugal), UoP (Portugal), SINTEF (Norway), VTT (Finland), UoS (UK)
 - **Geothermal:** CEGE (Italy – coordinator), BRGM (France), CNR (Italy), CNRS (France), CRES (Greece), ETHZ (Switzerland), GFZ (Germany), ISES, ISOR (Iceland), KIT (Germany), LIAG (Germany), TNO (Netherlands)
 - **Smart Grids:** ERSA (Italy – coordinator), ENEA (Italy – coordinator), ECN (the Netherlands), Risø/DTU (Denmark), VITO (Belgium), VTT (Finland), AIT (Austria), IWES (Germany), JRC-IE, LABEIN (Spain), LABORELEC (Belgium), SINTEF (Norway), TUBITAK (Turkey)

International cooperation

- Visit to US
 - Joint delegation EERA, EC
 - National laboratories: NREL, NETL
 - High interest from US to link to the EERA (pre-competitive)
 - EERA will participate in EU/US Energy Council
- Foreseen: visit to Japan (March & September)
 - Joint delegation EC and EERA

Spare slides

Silicon Materials

Main activities 2010-2013

- Improvement of crystal growth for very high efficiency solar cells
- Development of low-cost feedstock and wafers
- Development of high Si utilization approaches to wafers (low g/Wp)

Main results

- High-Q mc-Si wafers enabling >20% cell efficiencies
- Fully specified low cost feedstock allowing cell efficiencies >18%
- Next generation Si ribbons (cells>17%) and wafer equivalents (cells>18%)

Thin Film PV

Main activities 2010-2013

- Cell & module concepts for high efficiency
- Advanced transparent conductors
- Advanced module manufacturing
- Processes and equipment design for large-scale production
- Analysis and modelling of materials and devices

Main results

- Strongly improved device performance, enabling module production at 0.5 €/Wp in the long term
- New manufacturing technology for low-cost, high-yield production of large-area thin film modules

Organic PV

Main activities 2010-2013

- Building library of materials (absorber, electrode, barrier etc.)
- Defining protocols for fast screening of materials
- Elucidate degradation mechanisms, define common measures of OPV stability
- Improve understanding of device physics and morphology

Main results

- Scientific foundation for improving lifetime and efficiency of OPV towards a viable technology for bulk electricity production
- Common platform to facilitate collaboration between growing number of groups involved in OPV research

Module Technology

Main activities 2010-2013

- Development and evaluation of new module concepts and materials (low-cost and/or very high lifetime)
- Development of test methodologies allowing prediction of module lifetime under different climate conditions
- Improving energy yield predictions

Main results

- Technology available for module production at 0.8-1 €/Wp (2013)
- Model for module degradation and lifetime prediction
- Improved energy rating

Education, Training & Infrastructures

Main activities 2010-2013

- Identify outstanding R&D facilities and improve access for EERA
- Identify R&D facilities that are missing or need upgrade
- Set-up database of main projects of EERA partners
- Identify new joint projects using these facilities
- Organize staff exchange and education/training

Main results

- Improvement and optimal use of R&D infrastructure in EU
- Exchange programme for scientists/students
- Joint R&D projects