



SOLAR EUROPEAN INDUSTRY INITIATIVE

Manoël Rekinger, Technology Officer - EPIA



EU 2020 Targets. 20/20/20



Industrial Initiatives

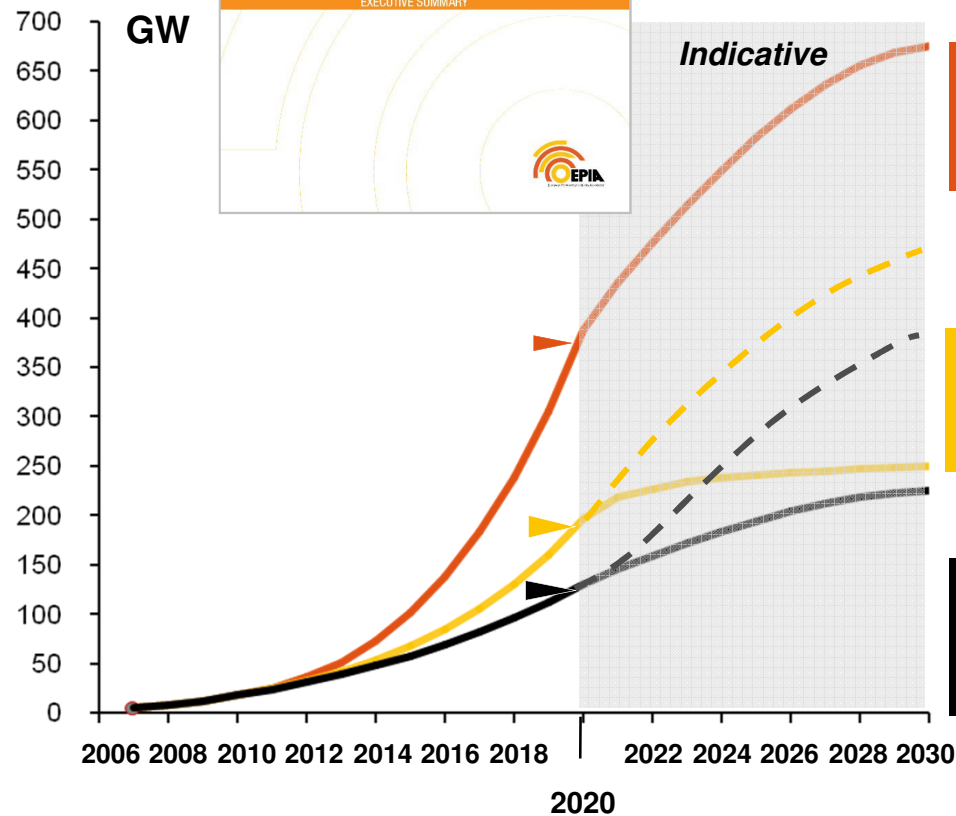
- **Industry-led RD&D programmes**
- **Large-scale & long duration (2010 - 2020)**
- **Impact well beyond business-as-usual:**
 - enabling large-scale deployment of technology
 - ensuring a major role of the European industry
- **Mixed financing: private + public, EU + Member States, grants & loans**
- **EII's launched on 3 June 2010:**
 - solar, wind, grids, CCS

- **Wind (The European Wind Initiative)**
- **Solar (The Solar Europe Initiative - photovoltaic and concentrated solar power)**
- **Electricity Grids (The European Electricity Grid Initiative)**
- **Carbon Capture & Storage (The European CO2 Capture, Transport and Storage Initiative)**
- **Nuclear Fission (The Sustainable Nuclear Initiative)**
- **Bio-energy (The European Industrial Bioenergy Initiative)**
- **Smart Cities (Energy Efficiency - The Smart Cities Initiative)**
- **Fuel Cells and Hydrogen (Joint Technology Initiative)**
- **Nuclear Fusion (International + Community Programme - ITER)**

PV can contribute up to 12% of EU electricity demand by 2020



Courtesy M. Lippert, SAFT



Share of demand by 2020

Paradigm Shift Scenario: 12%

Accelerated Scenario: 6%

Baseline Scenario: 4%

SEI contribution to achieving 12% PV penetration by 2020

2010

**COST
REDUCTION**

Volume
+
Innovation

INTEGRATION

Grids
+
Buildings

•Market deployment →
Feed-in-Tariffs

•Intensive & continuous
R&D

**SOLAR EUROPE
INDUSTRY INITIATIVE**

•PV system integration

•Smart Grids &
integration of other RES

2020

**12%
Target**

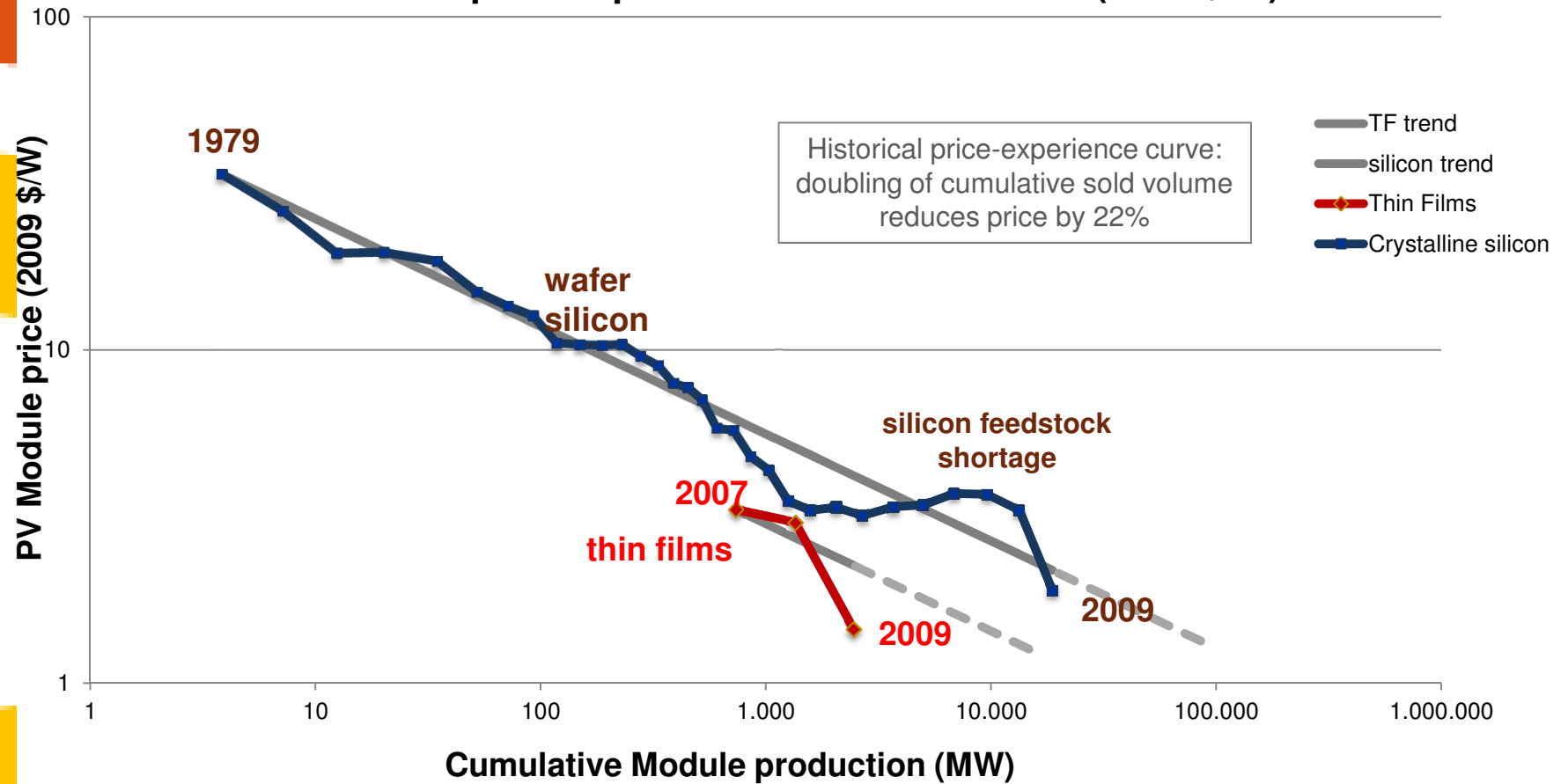


SOLAR EUROPEAN INDUSTRY INITIATIVE

PV TECHNOLOGY ROADMAP



PV Module price experience Curve since 1979 (2009 \$/W)



Cost reduction: paving the way to 2020		2007	2010	2015	2020
Turn-key price large systems (€/Wp)*		5	2,5-3,5	2	1,5
PV electricity generation cost in EU (€/kWh)**		0,30-0,60	0,13-0,25	0,10-0,20	0,07-0,14
Typical PV module efficiency range (%)	Crystalline silicon	13-18%	15-20%	16-21%	18-23%
	Thin films	5-11%	6-12%	8-14%	10-16%
	Concentrators	20%	20-25%	25-30%	30-35%
Inverter lifetime (years)		10	15	20	>25
Module lifetime (years)		20-25	20-25	25-30	35-40
Energy pay-back time (years)		2-3	1-2	1	0.5

* The price of the system depends on technology as well as market maturity of the market

** LCoE varies with financing cost, administration costs and location. Southern EU locations considered here range from 1500 (e.g. Toulouse) to 2000 kWh/m² per year (e.g. Siracusa)

*** Estimated figures based on EUROBAT roadmaps



SOLAR EUROPEAN INDUSTRY INITIATIVE

PRIORITY AREAS & STRUCTURE



Interaction with other initiatives

Energy Efficient Buildings PPP

Smart grids initiative

Green Cars PPP



Technological components

SEII

Cost reduction

System integration

Beyond 2020

Non-technological Components

Education & training

Awareness

Core of the SEII 2010-2012: Selected priority areas

1. Cost reduction: paving the way to 2020

- Advanced manufacturing processes for cells, modules and feedstock
- Performance enhancement and lifetime extension
- Power conditioning: smart inverters
- Sustainable material alternatives

2. System integration: paving the way to 2020

- Multifunctional PV modules for building integration solutions
- Stability and dispatchability (storage management)
- Solar resources, monitoring & simulation

3. Preparing for cost and penetration beyond 2020 levels

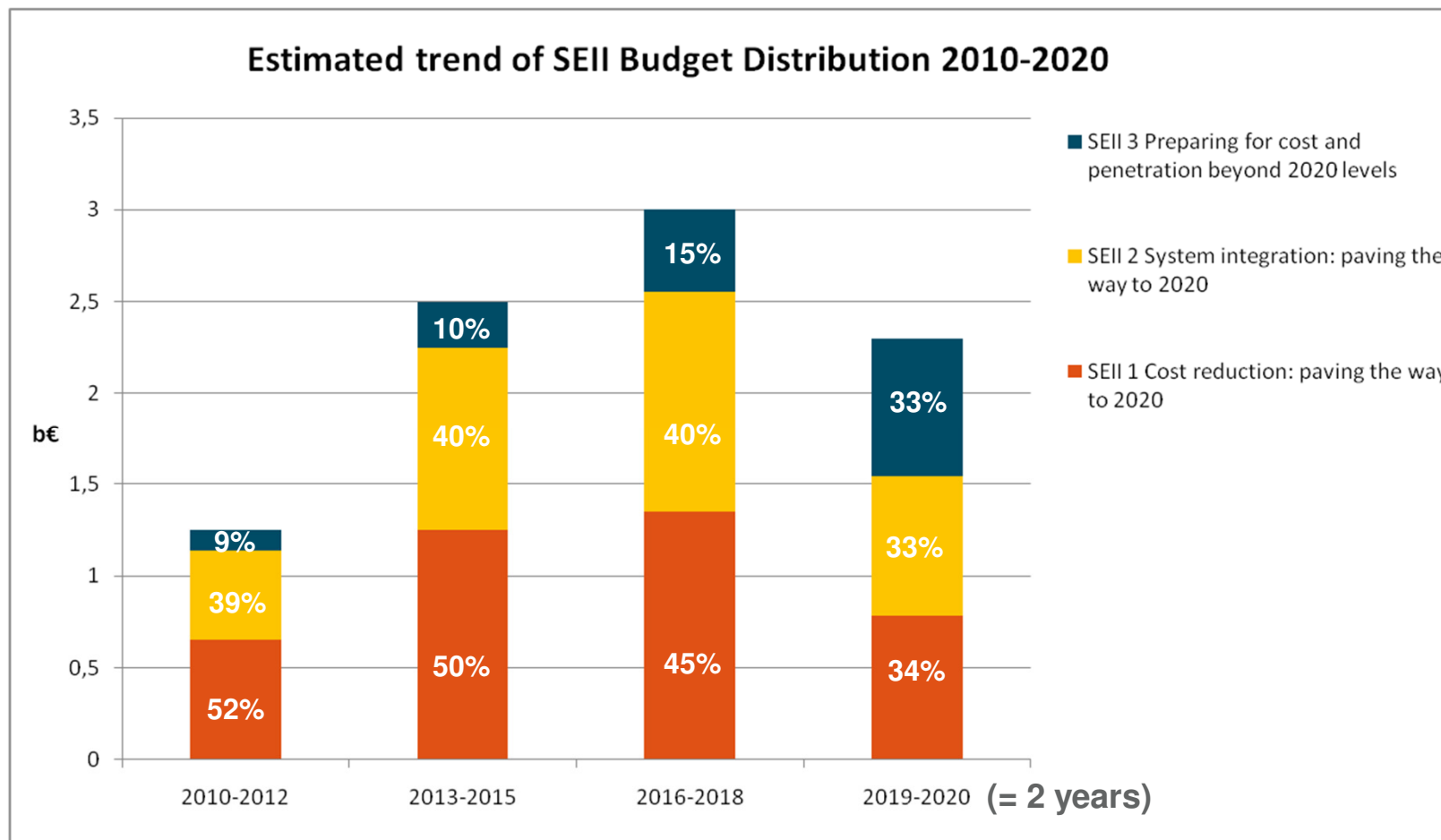
- Ultra-low cost technologies (develop to pilot production levels)
- Very-high efficiency approaches (develop to proof-of-concept levels)
- Integration concepts for very-high levels of PV penetration (demonstrate)



SOLAR EUROPEAN INDUSTRY INITIATIVE

FINDING THE APPROPRIATE FUNDING INSTRUMENTS AND ESTIMATED BUDGET





State of development	Level of public funding	EC/MS share
Market uptake/innovation/private infrastructure	<30%	20/80
Manufacturing technologies , demonstration & test facilities	30-50%	40/60
Pre-competitive research	50-70%	60/40
Enabling research/policy actions	70-90%	80/20



- Member States ,
- Equity and loans (EIB),
- NER-300

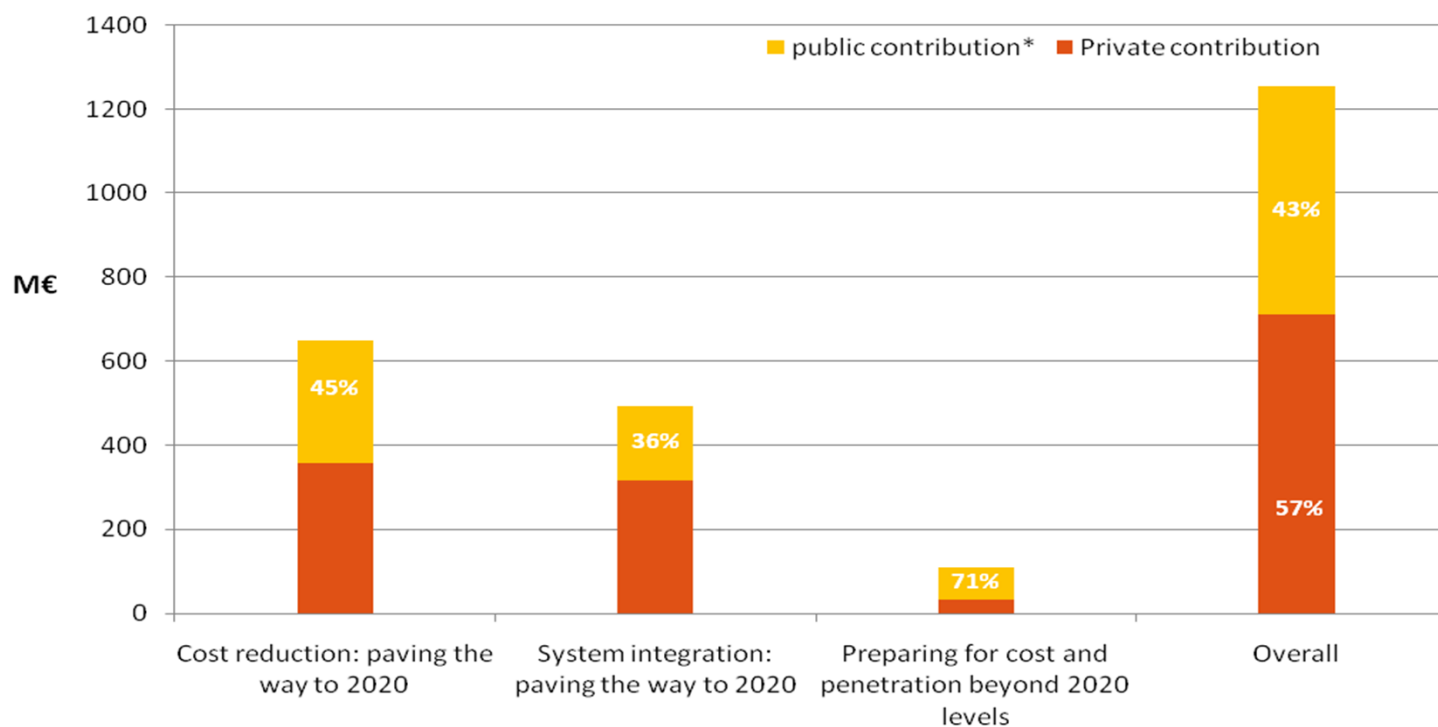


- EU grants,
- Member States,
- Equity and loans (EIB),
- NER-300



- EU grants,
- MS for relevant actions

Distribution of Budget: Period 2010-2012 : Private/Public share



* Public contribution: refers to EU grants and to debt loans (100% from industry) or aided loans (in the form of for instance soft loans or loan guarantees).



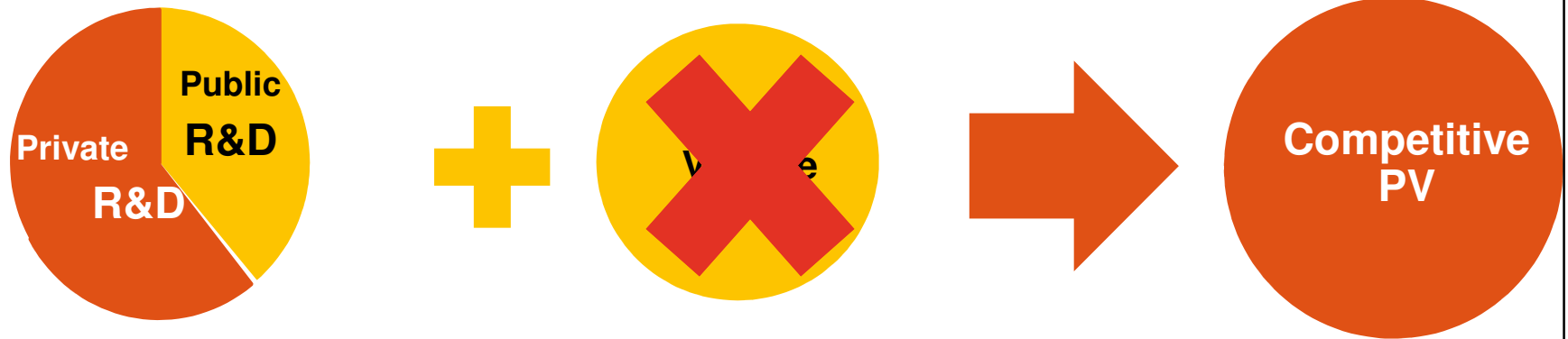
SOLAR EUROPEAN INDUSTRY INITIATIVE STATUS AND CONCLUSIONS



Where do we stand ?

- 6 meetings held with the SEII Team (Next one in December)
- The Governance structure and the kPIs of the SEII are defined
- Some concrete examples of potential joint activities
 - Glass for PV: pilot line for the optimization of several issues in glass production
 - Demonstrator on low cost, high throughput, non-vacuum thin film deposition for high efficiency CIGS technology integration
- Interest expressed by:
 - BE, CY, FIN, DE, GR, PT, ES, CH, TR, UK
- Questions of budget and scope still to be discussed, among

others...



PV can contribute with 12% of e-Demand in 2020 if:

- Intense RD&D effort (Industry + public) are increased
- Estable Market conditions are assured
- Legal and administrative barriers are removed
- The electricity grid is upgraded accordinly at distribution and transmission levels
- Other technologies like electrical vehicles, electrical storage are developed.

“The SEII describes the strategic RD&D components of “SET For 2020”, which are essential to enable rapid, large-scale deployment of PV at minimum cost and maximum benefit for society.”



European Photovoltaic Industry Association



Thank you very much for your attention!

www.epia.org

www.eupvplatform.org



European Photovoltaic Industry Association



BACKUP

www.epia.org

www.eupvplatform.org

Composition of the SEII Team and complementary Structures

SEII Team

- 8 representatives of industry,
 - 4 for PV and 4 for CSP
 - 1 per sector per MS
- 4 representatives of the EC
- 2 representatives of the EERA

The SEII Plenary

- Takes the strategic decisions
- Chaired by the EC

Working Groups

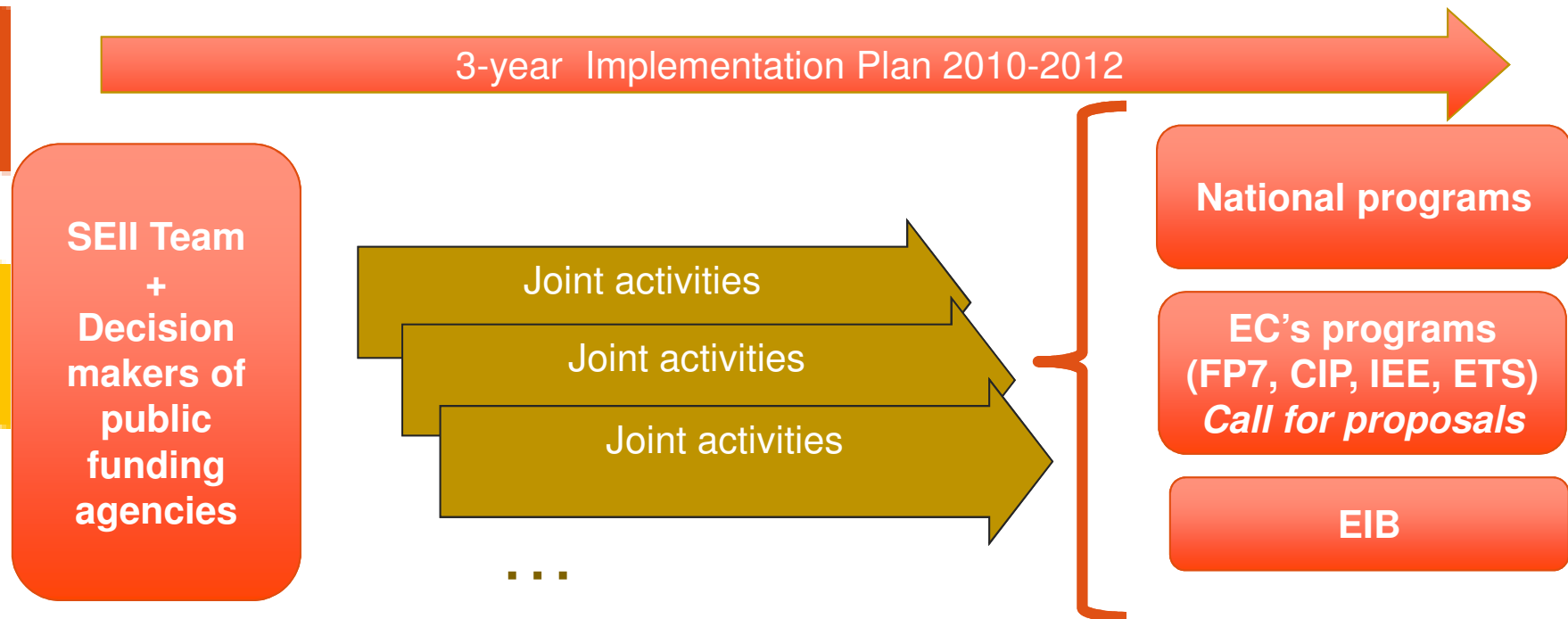
- Created to work on specific issues
- 6 Members maximum

The Coordination group

- 6 members (2 Industry, 2 MS, 2 EC)
- Support the Team

Project Liaison Group

- Composed by Industry/MS/EC
- Follow-up the projects within the SEII



Assumption: No additional funds from EU (apart from NER300) are available in the next 2 years