

The role of solar in the future energy system

Presentation to *Innovating Europe's energy future: the role of gas*

Sonia DUNLOP, Policy Adviser
Strasbourg, 22 November 2016



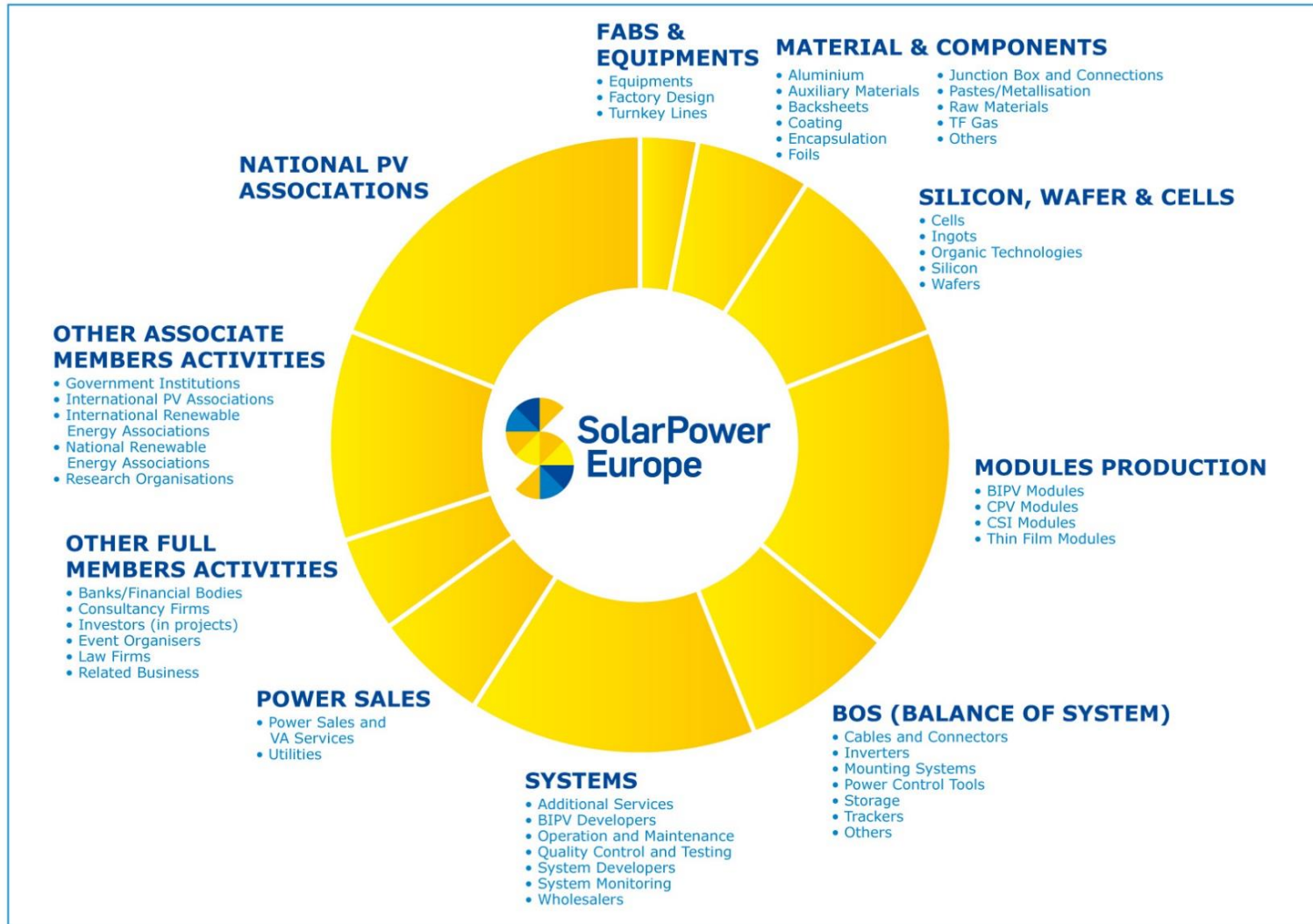
About SolarPower Europe

- The new European Photovoltaic Industry Association (EPIA)
- Companies from the whole solar value chain
- We help shape the policy environment and make business happen in the solar industry

Over 200 members, including the following leading companies:



Who do we represent?



Energy Union Package

Market Design Package

Energy Efficiency

Renewables

Governance

Electricity Directive

Electricity Regulation

ACER Regulation

Prices and costs report

DG COMP report on Capacity Markets

Energy Efficiency (EED)

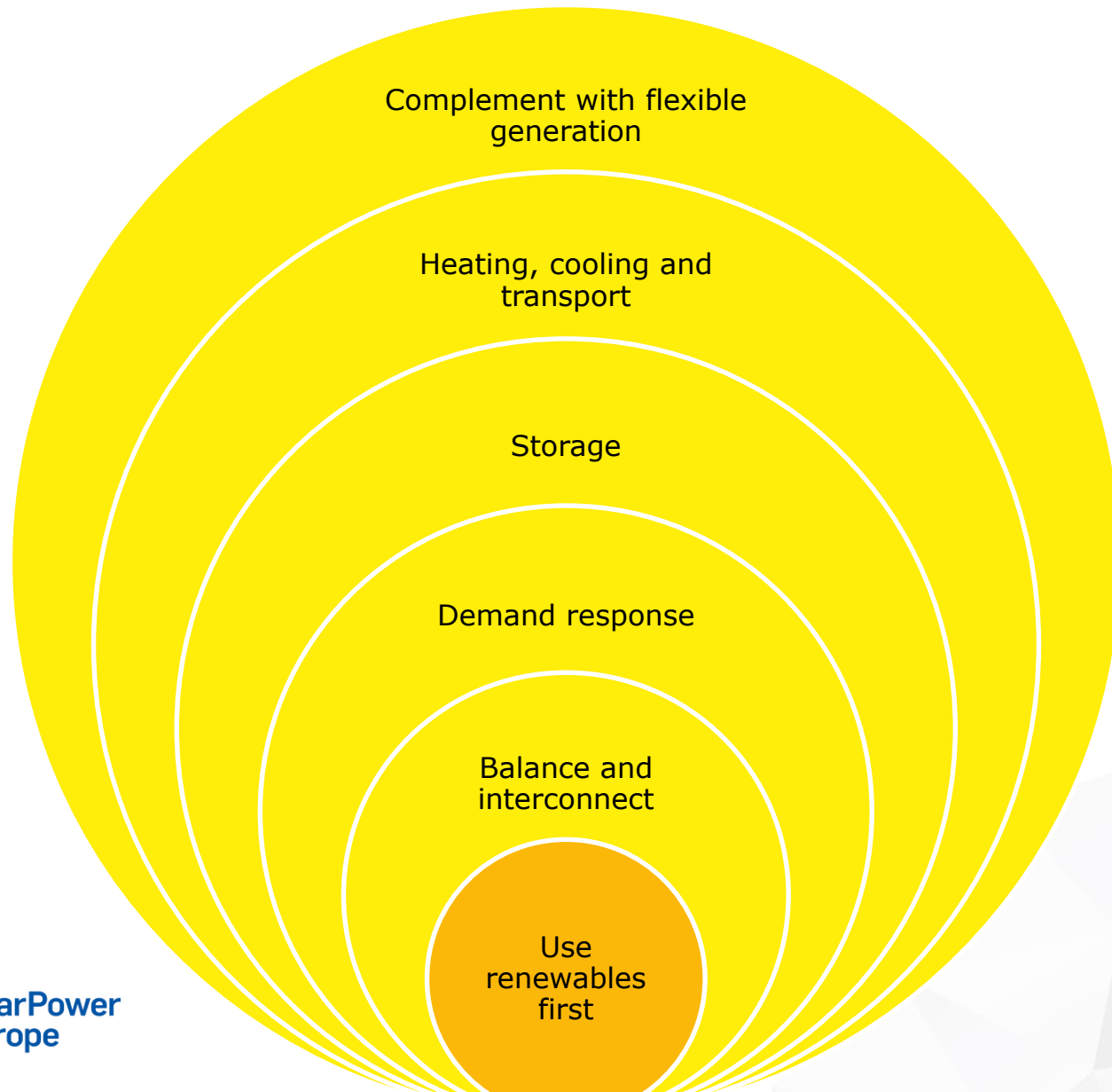
Energy Performance Bdgs (EPBD)

Ecodesign

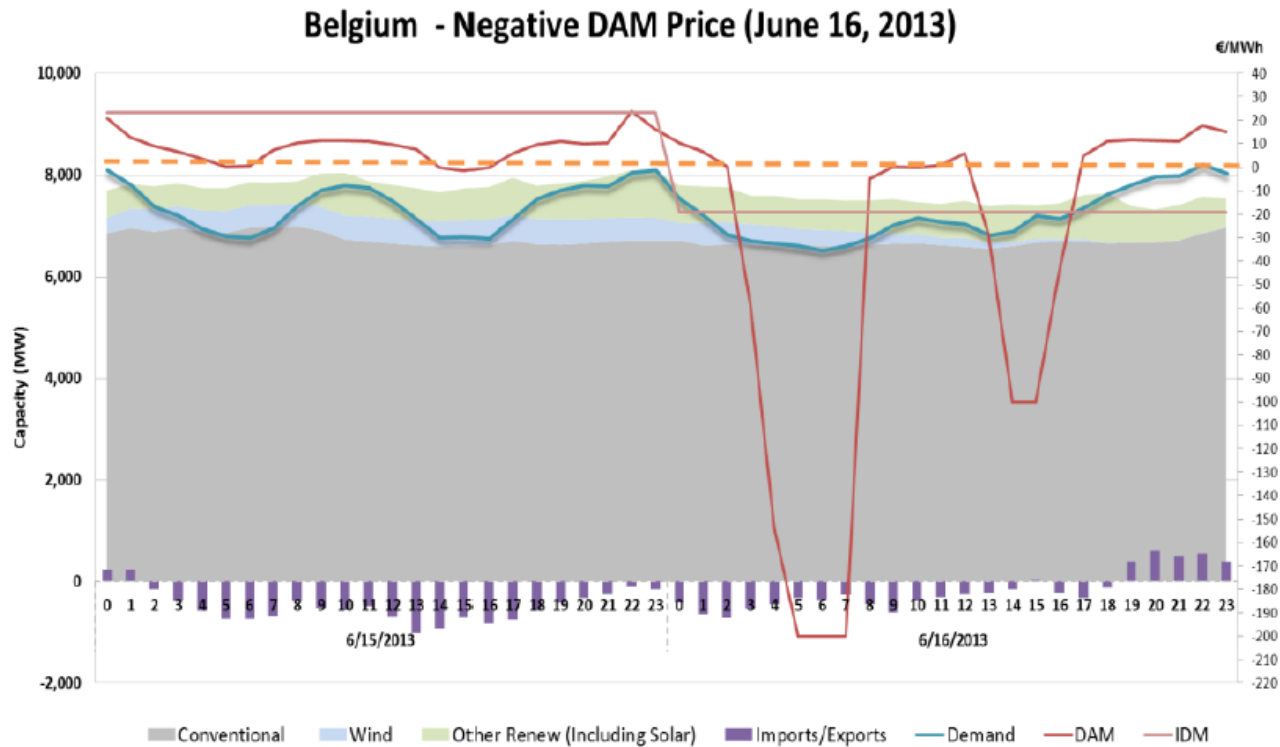
Sustainability bioenergy

Natl Energy and Climate Plans

The vision: a flexible energy system



Inflexible generation standing in the way of effective price signals



Source: 3E – Market4RES, 2015

Inflexibility

EUROPE'S DIRTY 30

EU'S TOP CO₂ POLLUTING POWER PLANTS IN 2013

COAL PLANT: LONGANET / UK
RANKING: NR. 21
CO₂ EMISSIONS (2013, Mtpa): 9.51
MW: 2,400

COAL PLANT: DRAX / UK
RANKING: NR. 6
CO₂ EMISSIONS (2013, Mtpa): 20.32
MW: 3,300

COAL PLANT: FERRYBRIDGE "C" / UK
RANKING: NR. 26
CO₂ EMISSIONS (2013, Mtpa): 8.31
MW: 1,000

COAL PLANT: EBBW DROUGH / UK
RANKING: NR. 11
CO₂ EMISSIONS (2013, Mtpa): 11.50
MW: 2,000

COAL PLANT: FIDDLER'S FERRY / UK
RANKING: NR. 24
CO₂ EMISSIONS (2013, Mtpa): 8.45
MW: 2,000

COAL PLANT: RATCLIFFE-ON-SEA / UK
RANKING: NR. 13
CO₂ EMISSIONS (2013, Mtpa): 11.01
MW: 2,000

COAL PLANT: WEST BURTON / UK
RANKING: NR. 14
CO₂ EMISSIONS (2013, Mtpa): 10.89
MW: 1,924

COAL PLANT: COTAM / UK
RANKING: NR. 18
CO₂ EMISSIONS (2013, Mtpa): 10.17
MW: 2,000

COAL PLANT: ABERTHAW / UK
RANKING: NR. 23
CO₂ EMISSIONS (2013, Mtpa): 8.50
MW: 1,500

28

COAL PLANT: ABOÑO / SPAIN
RANKING: NR. 28
CO₂ EMISSIONS (2013, Mtpa): 6.86
MW: 922

27

COAL PLANT: SINES / PORTUGAL
RANKING: NR. 27
CO₂ EMISSIONS (2013, Mtpa): 7.18
MW: 1,250

COAL PLANT: MAASVLAKTE / NETHERLANDS
RANKING: NR. 30
CO₂ EMISSIONS (2013, Mtpa): 6.68
MW: 1,080

COAL PLANT: NEURATH / GERMANY
RANKING: NR. 2
CO₂ EMISSIONS (2013, Mtpa): 33.28
MW: 4,168

COAL PLANT: NIEDERUSSEM / GERMANY
RANKING: NR. 3
CO₂ EMISSIONS (2013, Mtpa): 29.58
MW: 3,680

COAL PLANT: SCHOLVEN / GERMANY
RANKING: NR. 17
CO₂ EMISSIONS (2013, Mtpa): 10.22
MW: 2,056

15

OIL SHALE PLANT: EESTI ELEKTRIJAAM / ESTONIA
RANKING: NR. 15
CO₂ EMISSIONS (2013, Mtpa): 10.67
MW: 1,610

COAL PLANT: BELCHATÓW / POLAND
RANKING: NR. 1
CO₂ EMISSIONS (2013, Mtpa): 37.18
MW: 5,298

COAL PLANT: KOZLENICE / POLAND
RANKING: NR. 16
CO₂ EMISSIONS (2013, Mtpa): 10.23
MW: 2,840

COAL PLANT: WEISWEILER / GERMANY
RANKING: NR. 7
CO₂ EMISSIONS (2013, Mtpa): 18.66
MW: 1,798

COAL PLANT: MANNHEIM / GERMANY
RANKING: NR. 29
CO₂ EMISSIONS (2013, Mtpa): 6.75
MW: 1,520

COAL PLANT: BOXBERG / GERMANY
RANKING: NR. 5
CO₂ EMISSIONS (2013, Mtpa): 21.89
MW: 2,427

COAL PLANT: LIPPENDORF / GERMANY
RANKING: NR. 10
CO₂ EMISSIONS (2013, Mtpa): 11.73
MW: 1,750

20

COAL PLANT: TORREVALDI LUGA / ITALY
RANKING: NR. 20
CO₂ EMISSIONS (2013, Mtpa): 9.73
MW: 1,980

COAL PLANT: BRINDISI SUD / ITALY
RANKING: NR. 9
CO₂ EMISSIONS (2013, Mtpa): 11.61
MW: 2,640

12 4 19 10 5 17 3 2 29 7

COAL PLANT: SCHWARZE PUMPE / GERMANY
RANKING: NR. 12
CO₂ EMISSIONS (2013, Mtpa): 11.28
MW: 1,500

COAL PLANT: JÄNSCHWALDE / GERMANY
RANKING: NR. 4
CO₂ EMISSIONS (2013, Mtpa): 25.40
MW: 2,730

9

COAL PLANT: RYBNIK / POLAND
RANKING: NR. 25
CO₂ EMISSIONS (2013, Mtpa): 8.39
MW: 1,720

COAL PLANT: T URÓW / POLAND
RANKING: NR. 19
CO₂ EMISSIONS (2013, Mtpa): 9.99
MW: 1,505

22

COAL PLANT: KARDIA / GREECE
RANKING: NR. 8
CO₂ EMISSIONS (2013, Mtpa): 13.11
MW: 1,586.5

8

COAL PLANT: VARDIA / GREECE
RANKING: NR. 22
CO₂ EMISSIONS (2013, Mtpa): 8.91
MW: 1,200

Practical steps for the Market Design package

1. Organise smart phase-out of inflexible coal
2. Restore price signals
3. Create more liquid markets with “smaller” products
4. Ensure access for (aggregated) demand response
5. Make Capacity Mechanisms cleaner and about flexibility
6. Ensure proper retail competition
7. Keep priority dispatch



MILK AND ELECTRICITY?





SolarPower Summit

GLOBAL MARKET FORECASTS, POLICIES AND TECHNOLOGY TRENDS

07 – 08 MARCH 2017 | BRUSSELS, BELGIUM

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THANK YOU – QUESTIONS?

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