



# Sustainable Energy Vision for EU – 27 and the World

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International Network for Sustainable Energy

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European Sustainable Energy Policy Seminar

Organised by INFORSE-Europe and EREF



[http://www.inforse.org/europe/seminar08\\_BXL.htm](http://www.inforse.org/europe/seminar08_BXL.htm)

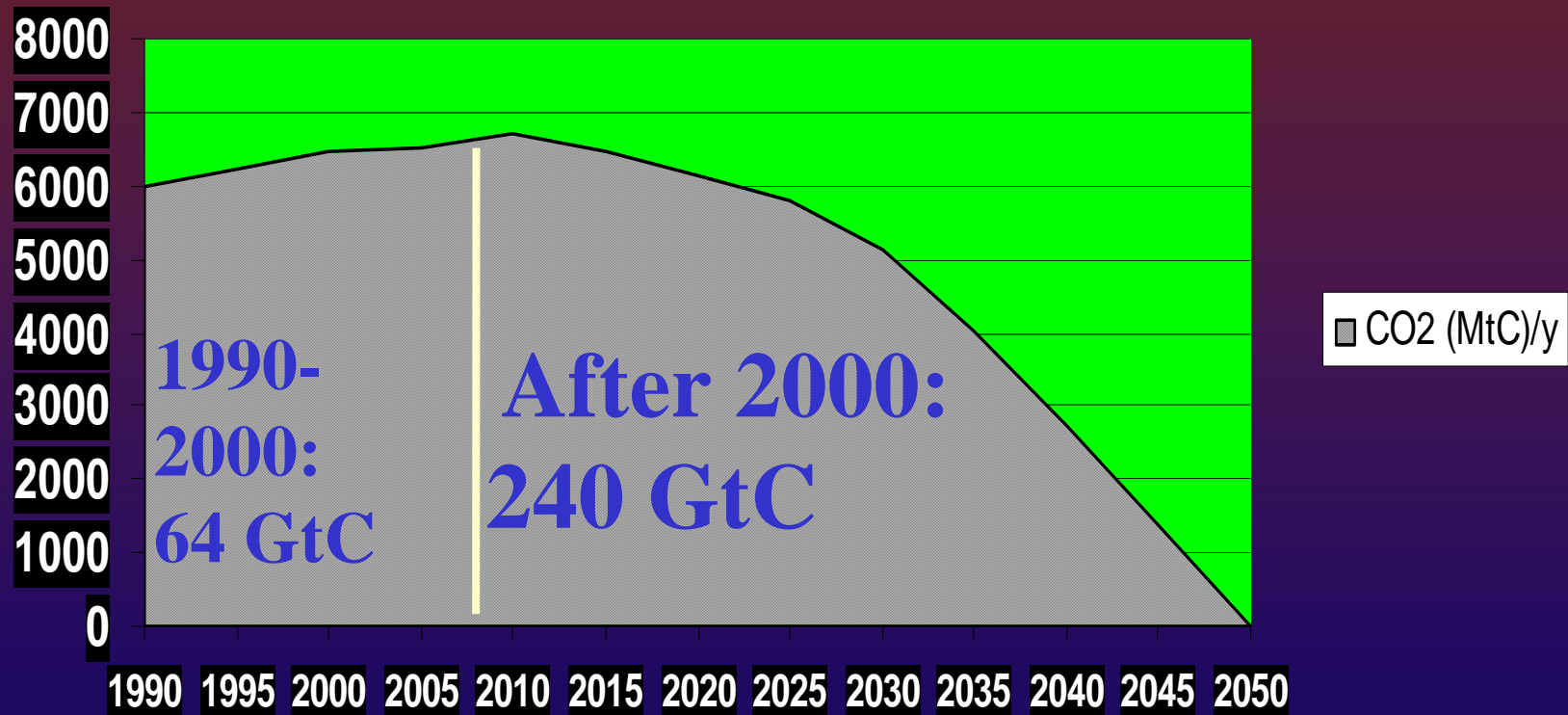
# Global Energy Challenges

## Global imperatives:

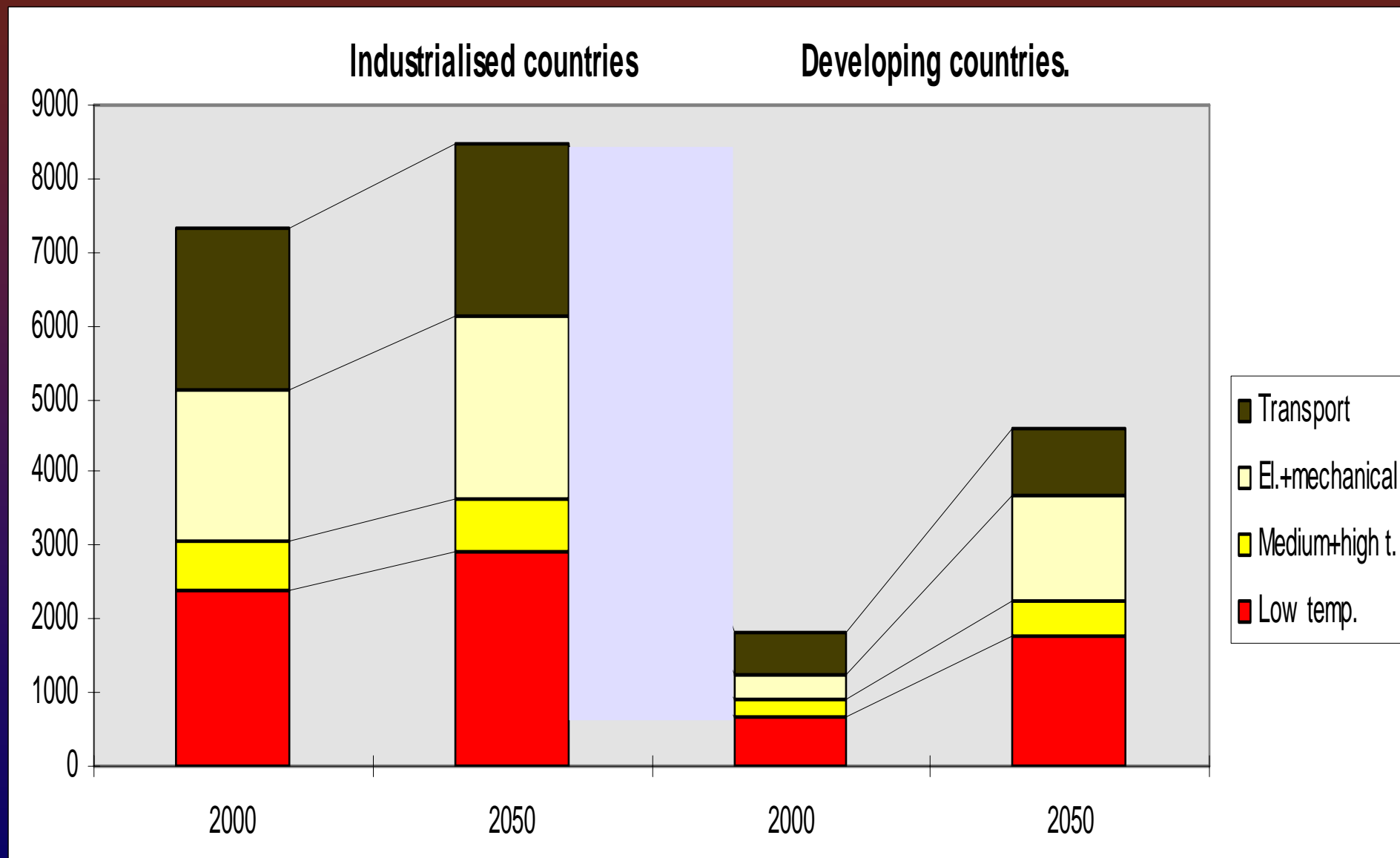
- ❖ The world energy use is beyond the environmental limits, e.g. Greenhouse gas emissions
- ❖ does not provide basic energy needs as light and healthy cooking facilities to 1/4 of the world's population
- ❖ We must limit global warming to 2°C above pre-industrial level
- ❖ EU must take the lead

# INFORSE Global Sustainable Energy Vision

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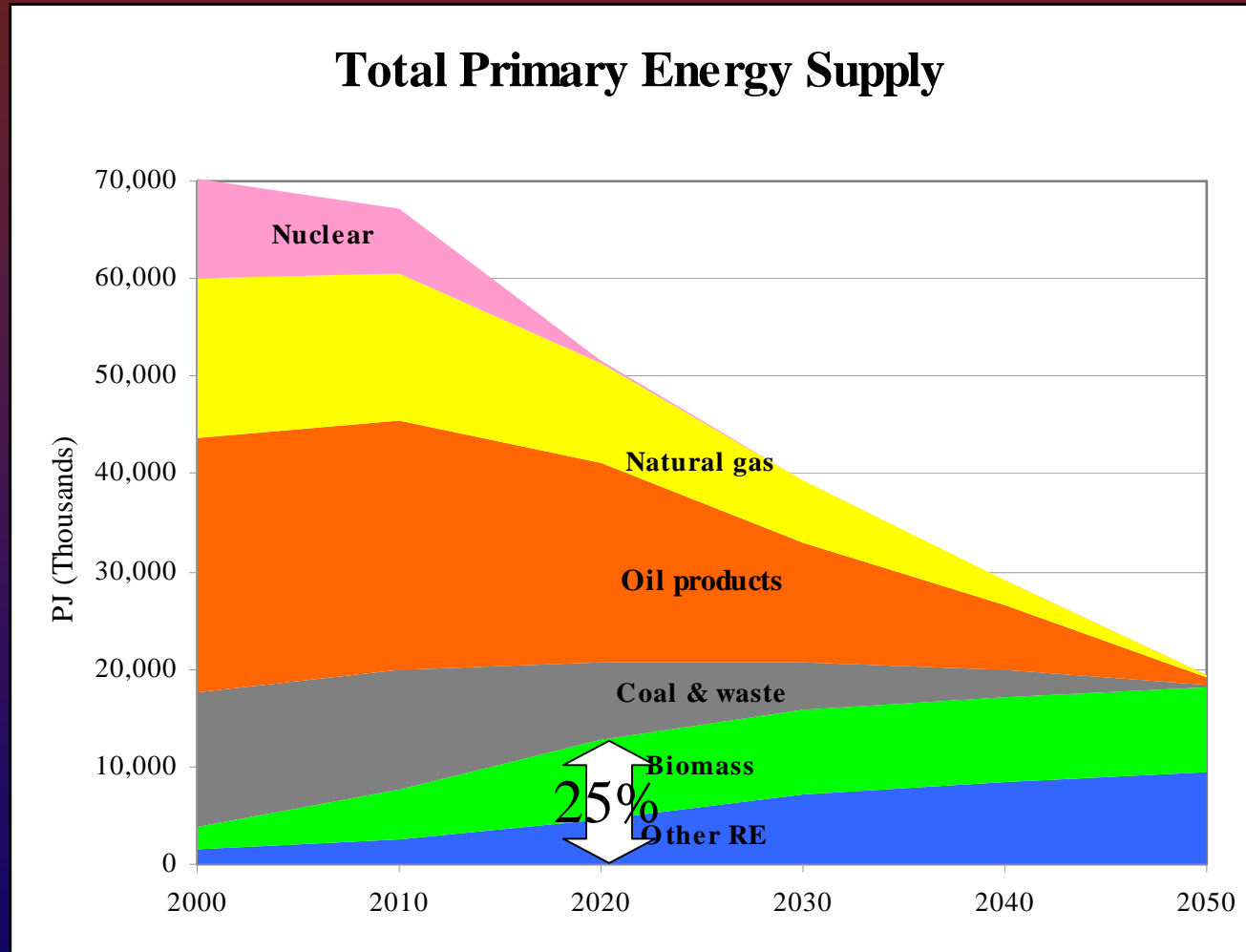
# Energy Services per capita



# INFORSE Sustainable Energy Visions

- Vision for the World
- Vision for EU-27
- For Denmark, Latvia, Lithuania, Romania, Slovakia, Ukraine, (Bulgaria, Russia, Belarus)
- Phase out nuclear 2025 and fossils '30-'50
- Factor 4 energy efficiency when possible
- Sustainable use of national renewables
- Efficient energy systems
- Electric and hydrogen transport
- Energy Balance for every decade to show path

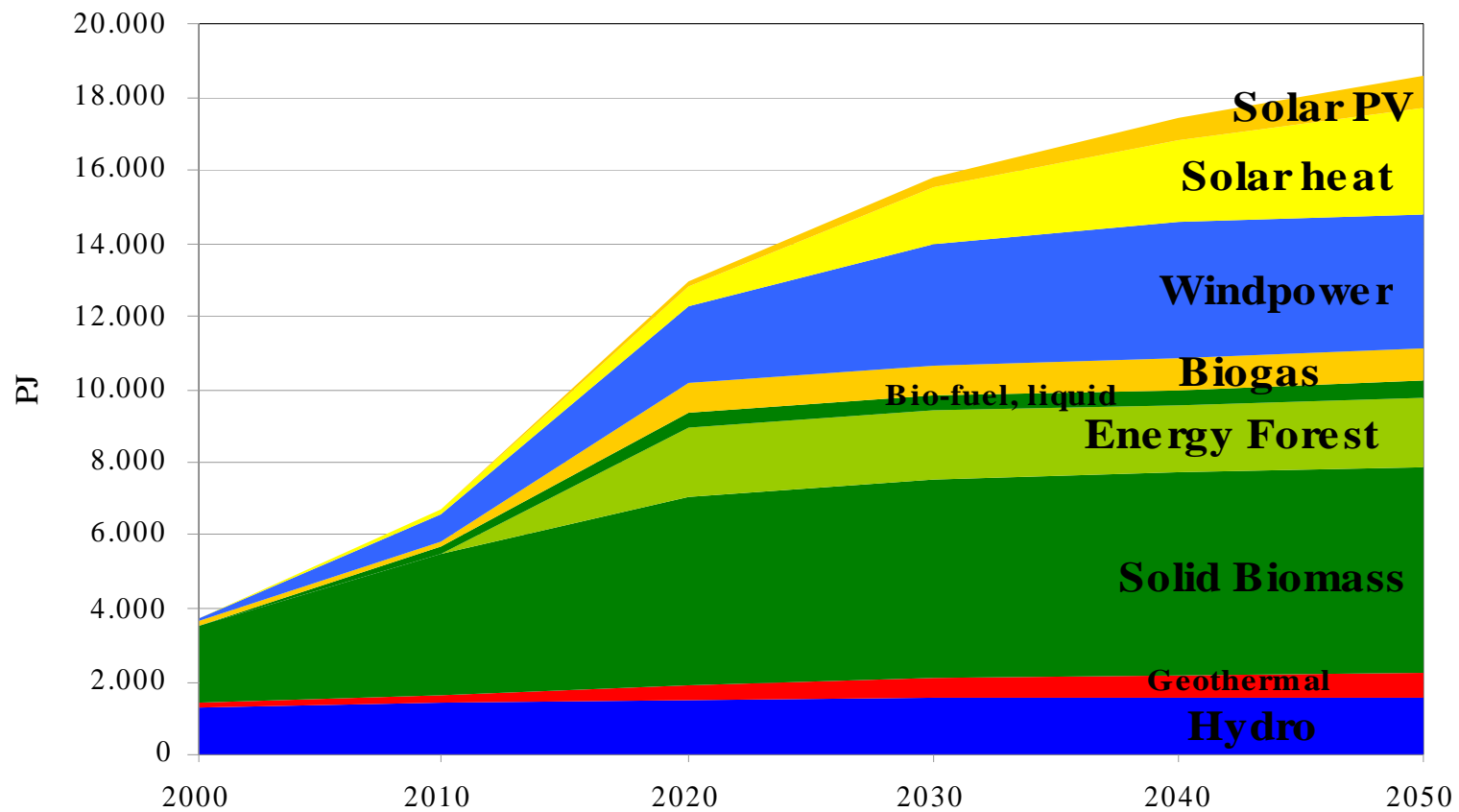
# INFORSE's EU-27 Vision



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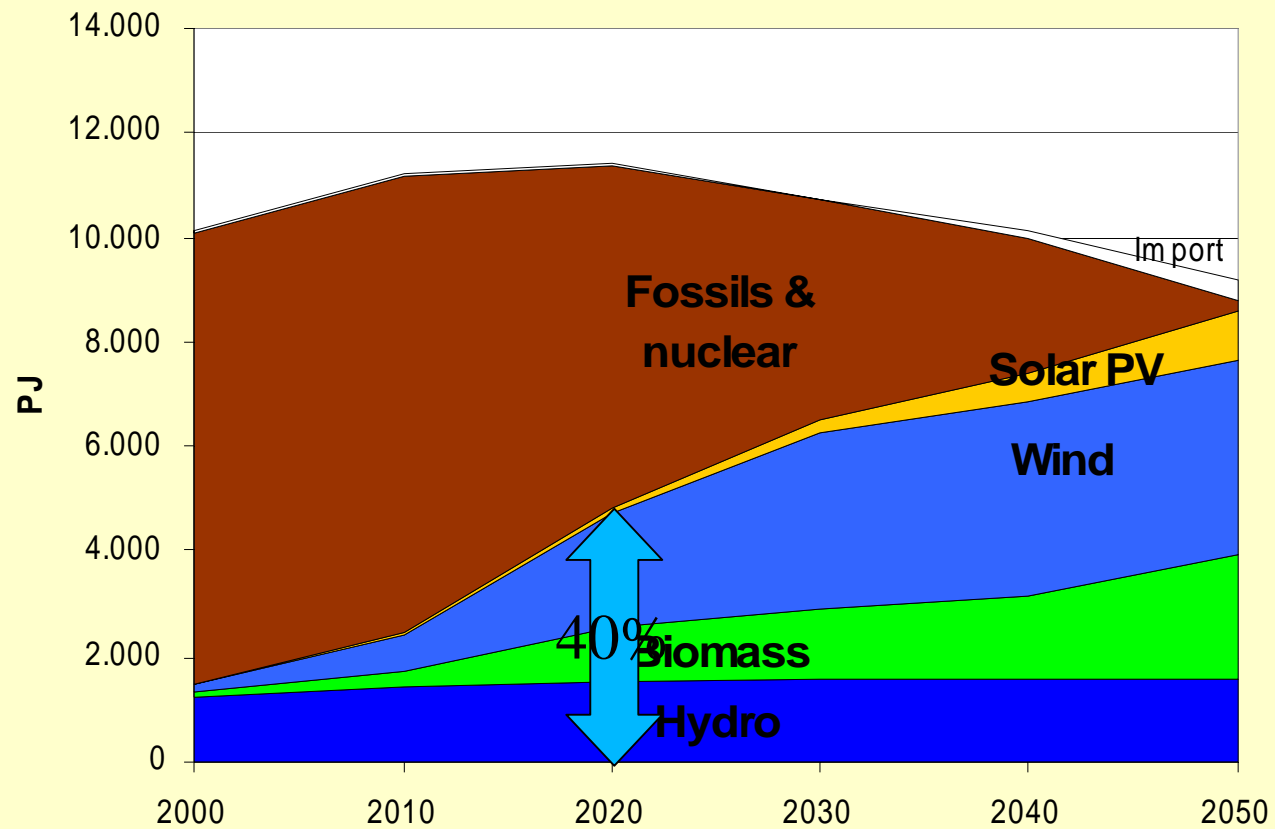
# INFORSE's EU-27 Vision

## Renewable Energy Supply



# INFORSE's EU-27 Vision

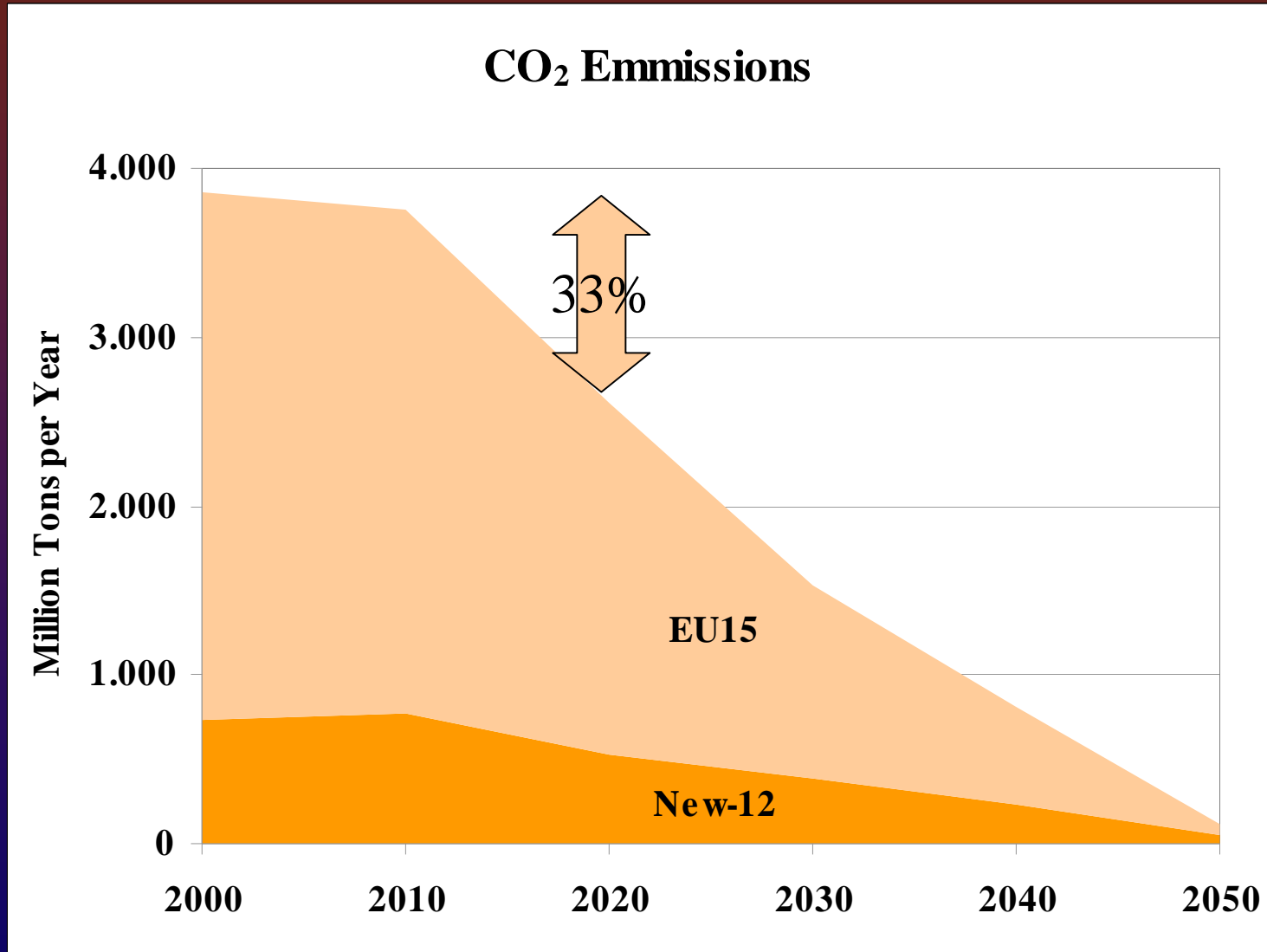
## Electricity Divided in Supply



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# INFORSE's EU-27 Vision



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# EU Sustainable Energy Vision

## Develop energy balances for 2010, 2020, 2030, 2040 and 2050

Lithuania-3 - OpenOffice.org Calc

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	A	B	C	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
3																	
4	<b>TABLE 1</b>																
5	<b>Year 2020</b>																
6																	
7	Primary Production			7,20	2,65	0,00	12,23	0,35		84,72	9,85	3,06					110,21
8	Refineries/gas works /blast furnaces/peat briquette						- 11,60	0,04		- 0,05							- 11,62
9	Import / export (incl. bunkring and international flights)						105,05	51,86		- 0,25			- 1,07				155,59
10	Total Net supply			7,20	2,65	0,00	105,58	52,25		84,41	9,85	3,06	- 1,07	- 0,00			254,18
11	Dil, coal and gas sector	Energy sect. other/misc					0,08	0,12					2,45	0,35			3,01
12		Exploitation own consumption, flaring					0,00	0,00					0,03				0,03
13		Refineries own consumption					15,54	0,03					1,80	1,17			18,54
14	Electricity and	District heating stations					2,00	4,17		4,88		2,90	1,01	- 13,04			1,92
15	District heating sector	Heat pump stations															
16		Condensing power stations					2,23			- 0,00			- 1,12				1,12
17		Cogeneration stations					0,59	9,61		48,50			- 25,14	- 20,38			13,19
18		RE (solar, wind, hydro, wave, tidal)		7,20	2,65	0,00					9,85		- 9,85				
19		Hydrogen stations															
20		Grid losses etc.					0,23	1,13					3,76	6,04			11,16
21	Final Energy consumption	Non-energy purposes					5,75	23,34									29,08
22		Transport								7,56							74,50
23		Road					67,04										5,00
24		Rail					3,47							1,53			1,16
25		Aviation					1,16										0,35
26		Navigation					0,35										0,09
27		Pipeline															0,00
28		Production															1,77
29		Chem. ex.feedst					0,10	0,15		0,00				0,39			2,41
30		Iron and Steel					0,00	0,03		0,00				0,21	0,01		0,26
31		Paper, pulp, wood					0,10	0,89		0,73				1,37	0,14		3,22
32		Other industry					4,41	5,24		1,17				5,86	1,40		17,88
33		Construction					1,33	0,47		0,16				0,60	0,14		2,70
34		Agriculture					1,47	0,72		0,43				0,74	0,42		3,78
35		Service sector															
36		Private+ public					- 0,02	3,73		2,67				7,58	7,78		21,76
37		Households															
38	Final Energy consump, ex: non-energy, dom.avia., defense			7,20	2,65	0,00	83,15	28,76		84,41	9,85	3,06	25,99	25,84			202,36
39	Total Consumption			7,20	2,65	0,00	105,68	52,25		84,41	9,85	3,06	- 1,07	- 0,00			254,18
40	Specific CO2-emissions (ton CO2/P J) ***																
41	CO2-emissions (million ton CO2)						7,24	3,07									10,31
42													Intermitt.	20%			
43													Flexible				

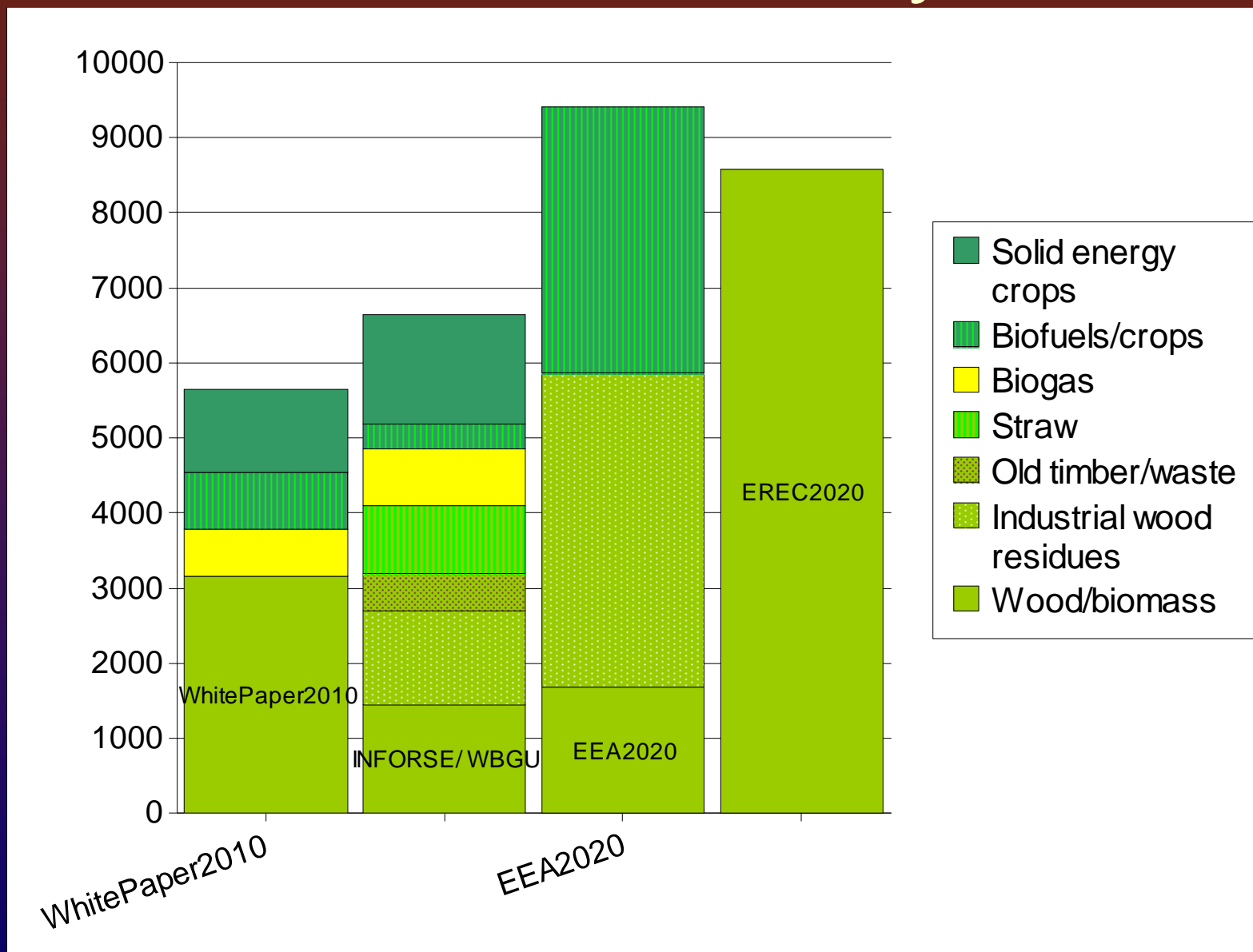
Sheet 6 / 13 PageStyle\_2020 75% STD \* Sum=0

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## Visions in 2008:

- Vision for Bulgaria
- Update visions for Latvia and Lithuania (and Denmark)
- Use best available science to find sustainability limits of developments (greenhouse gases, use of biomass, etc.)

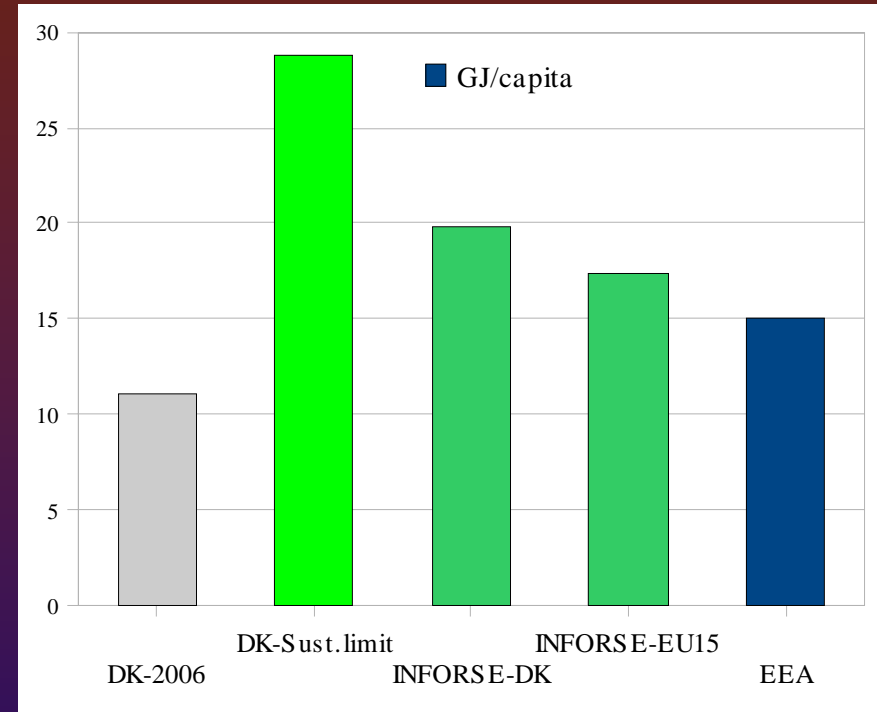
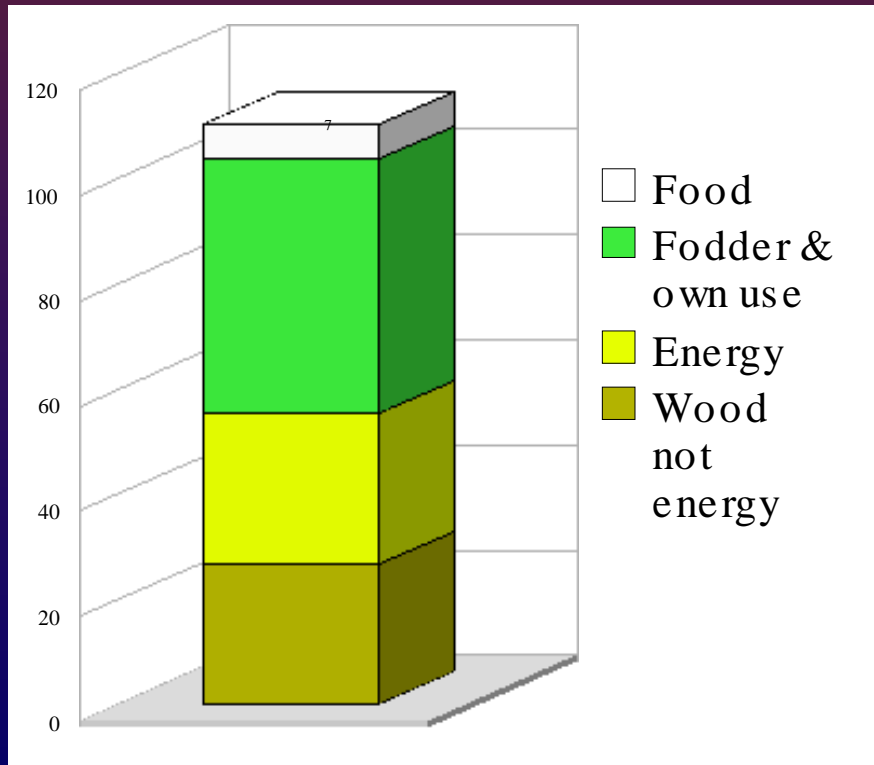
# Biomass, sustainably in EU (PJ)



# Sustainable Biomass Use

## EU-15 Biomass for energy

### Sustainable use of Danish harvest from agri+forestry (GJ/capita)



# Thank you

