Bioenergy for GHG mitigation in Denmark: success stories and future policy developments

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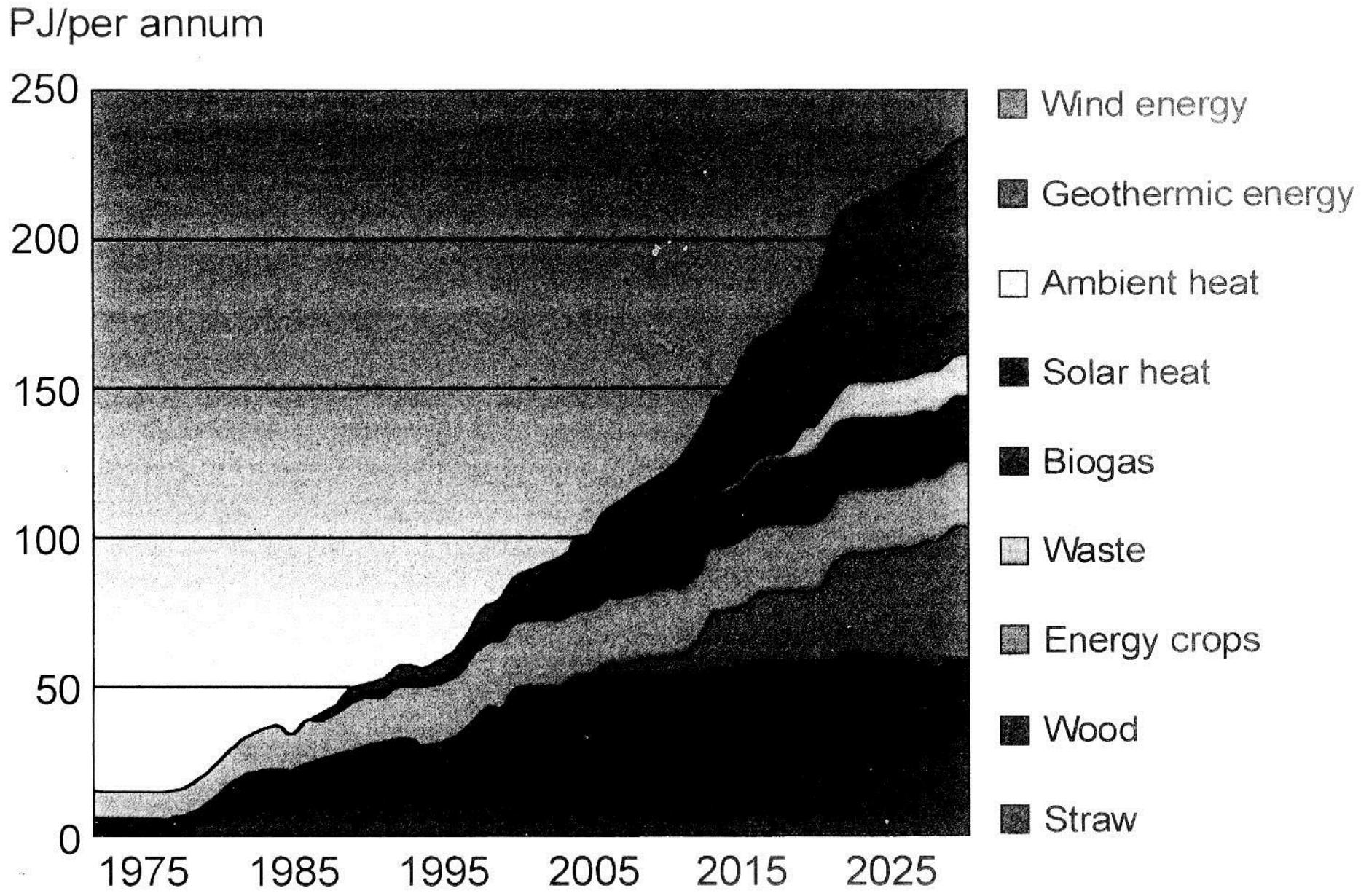
PJ/per annum
250
200
150
100
50
0
1975
1985
1995
2005
2015
2025
Wind energy
Geothermic energy
Ambient heat
Solar heat
Biogas
Waste
Energy crops
Wood
Straw

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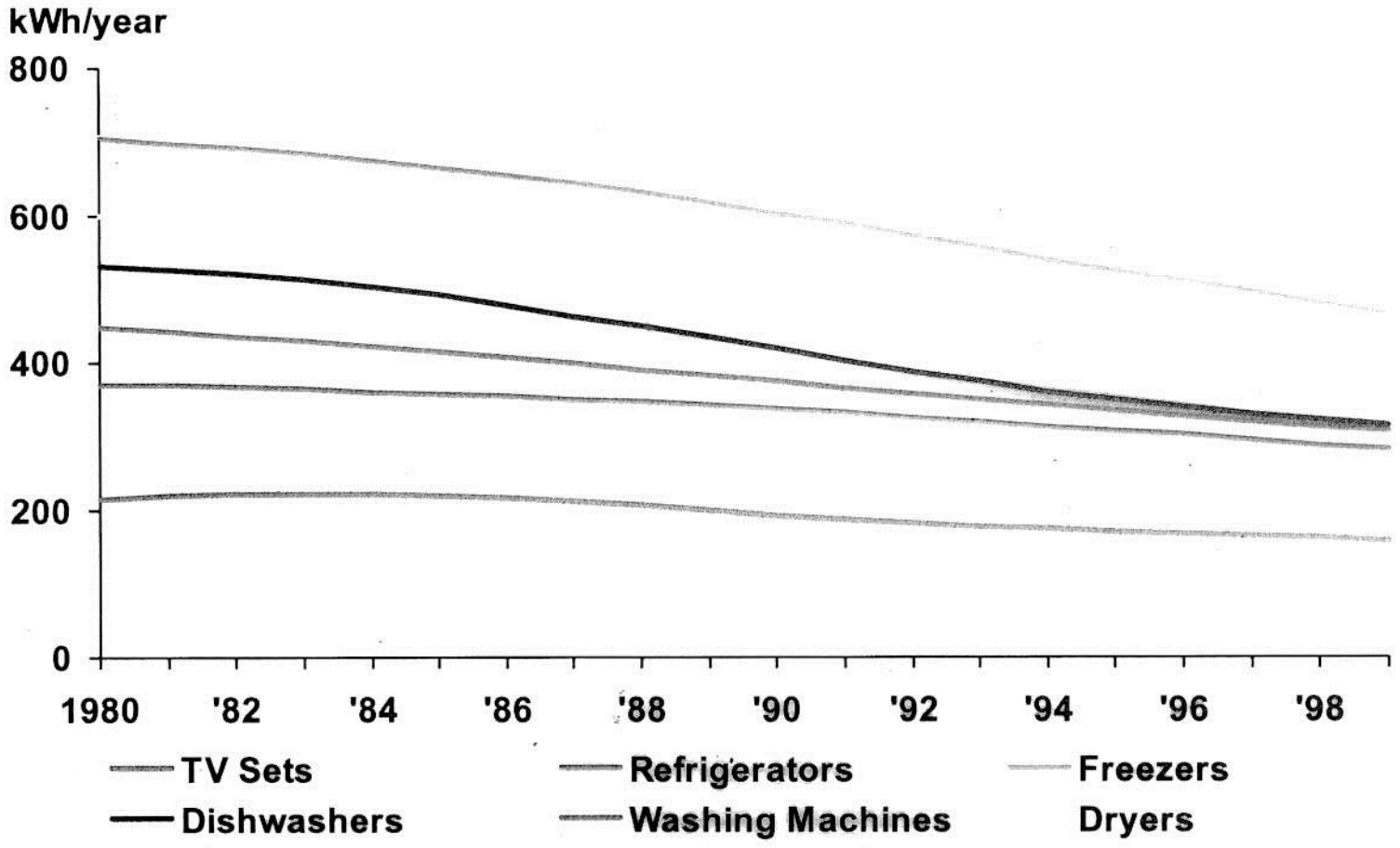
Specific Consumption of Electrical Appliances



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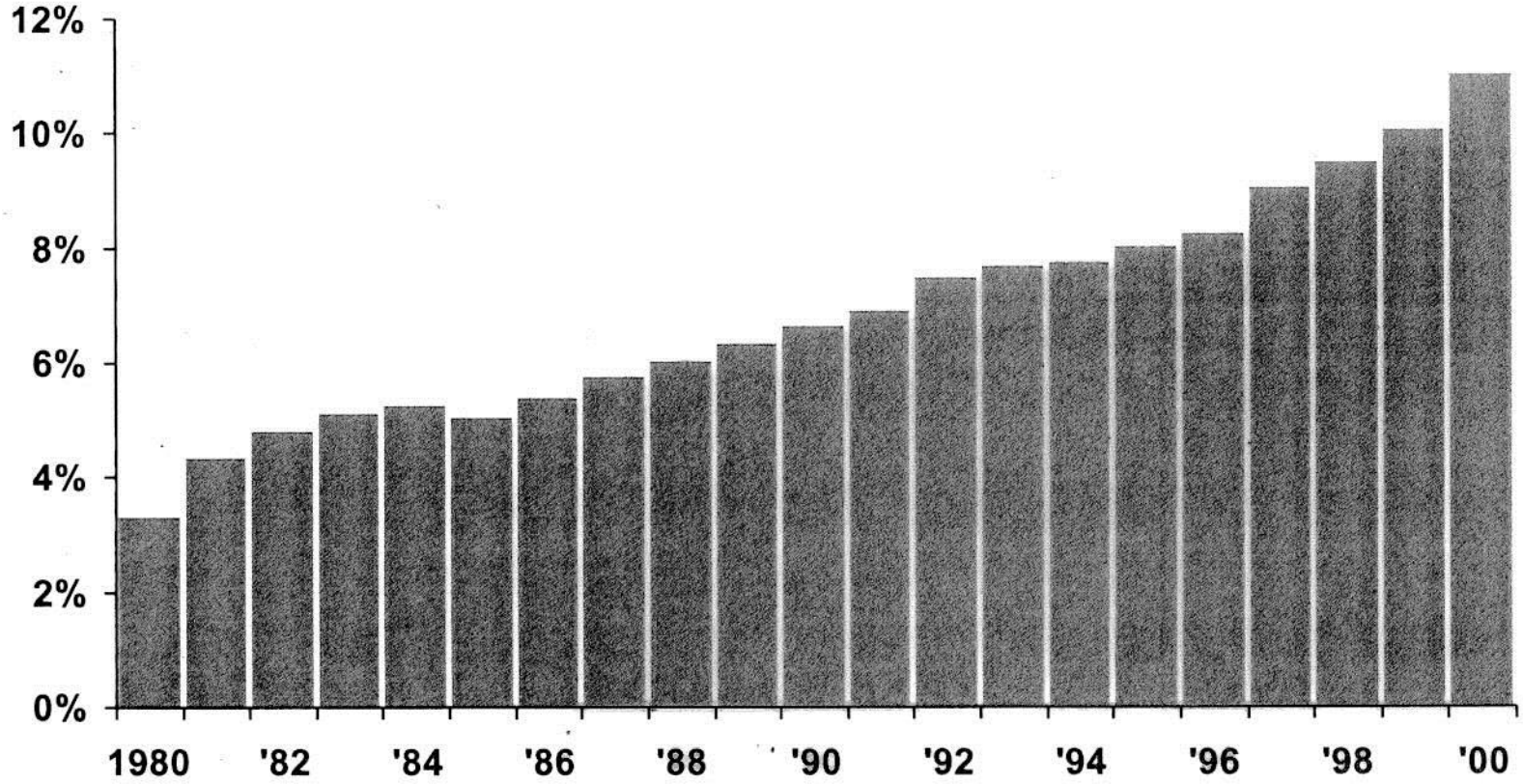
Renewable Enegy etc.- Share of Gross Energy Consumption



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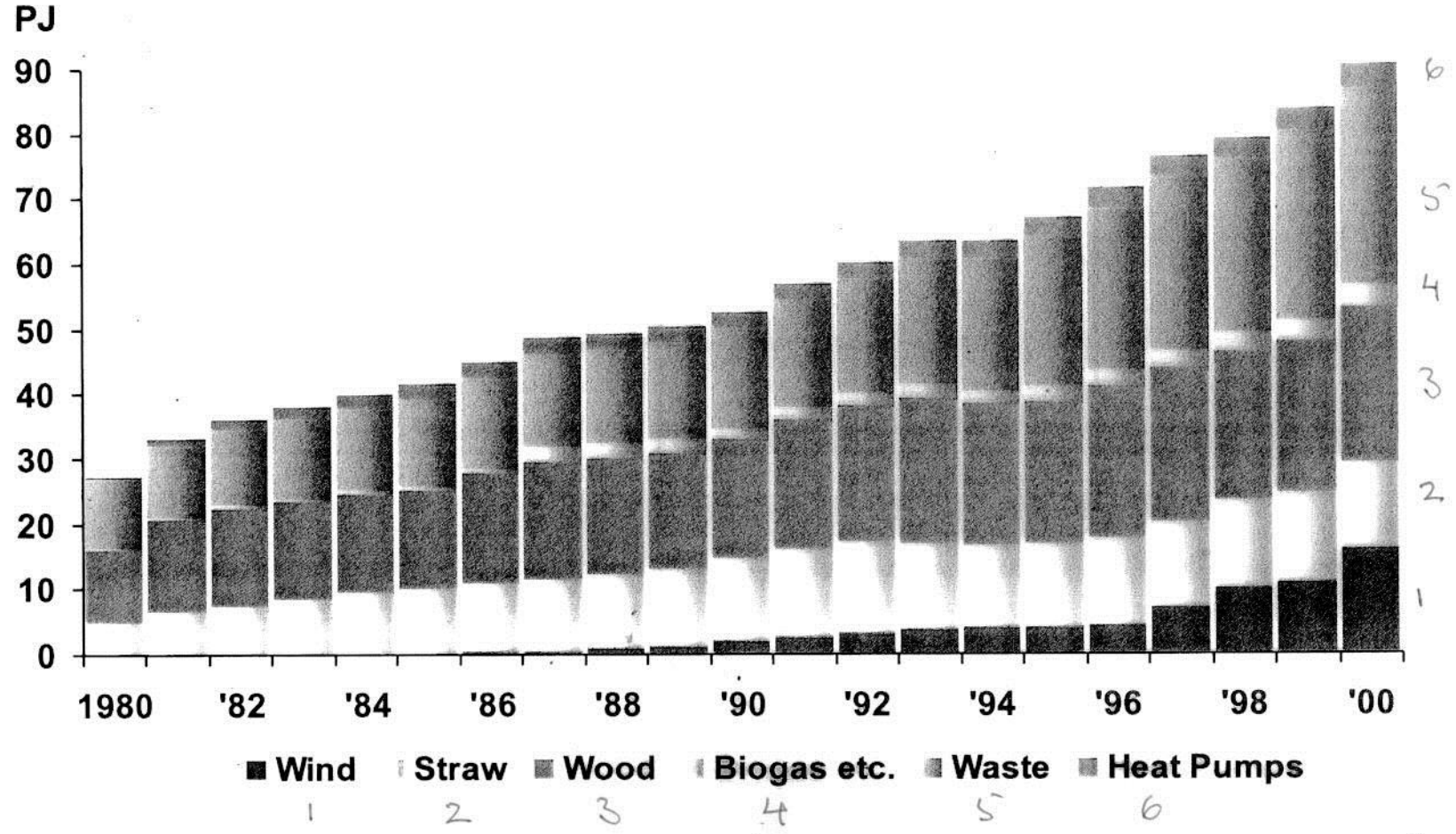
Production of Renewable Energy etc. by Energy Product

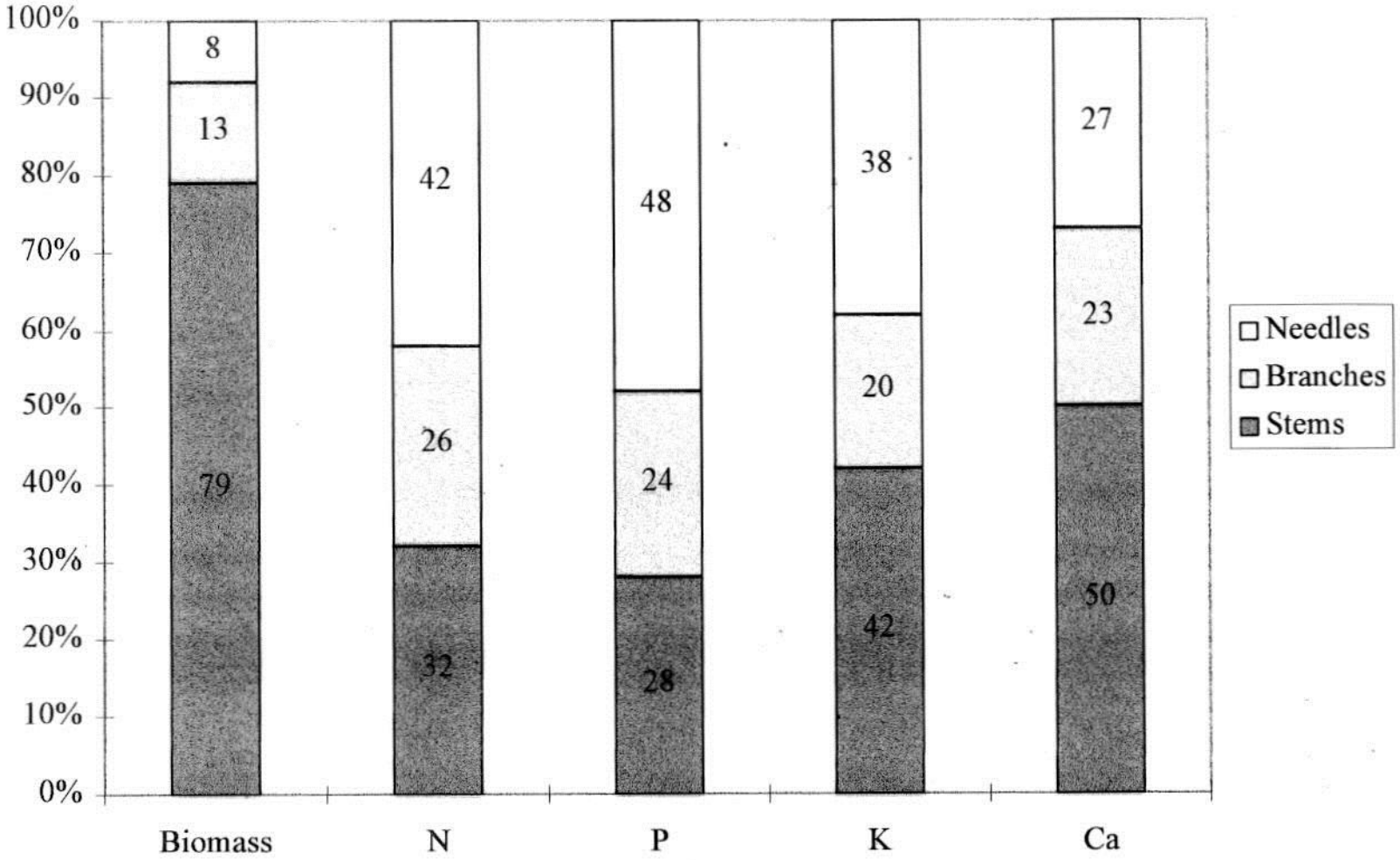


1. **The exploitation of wood waste from wood industry for energy purposes.**

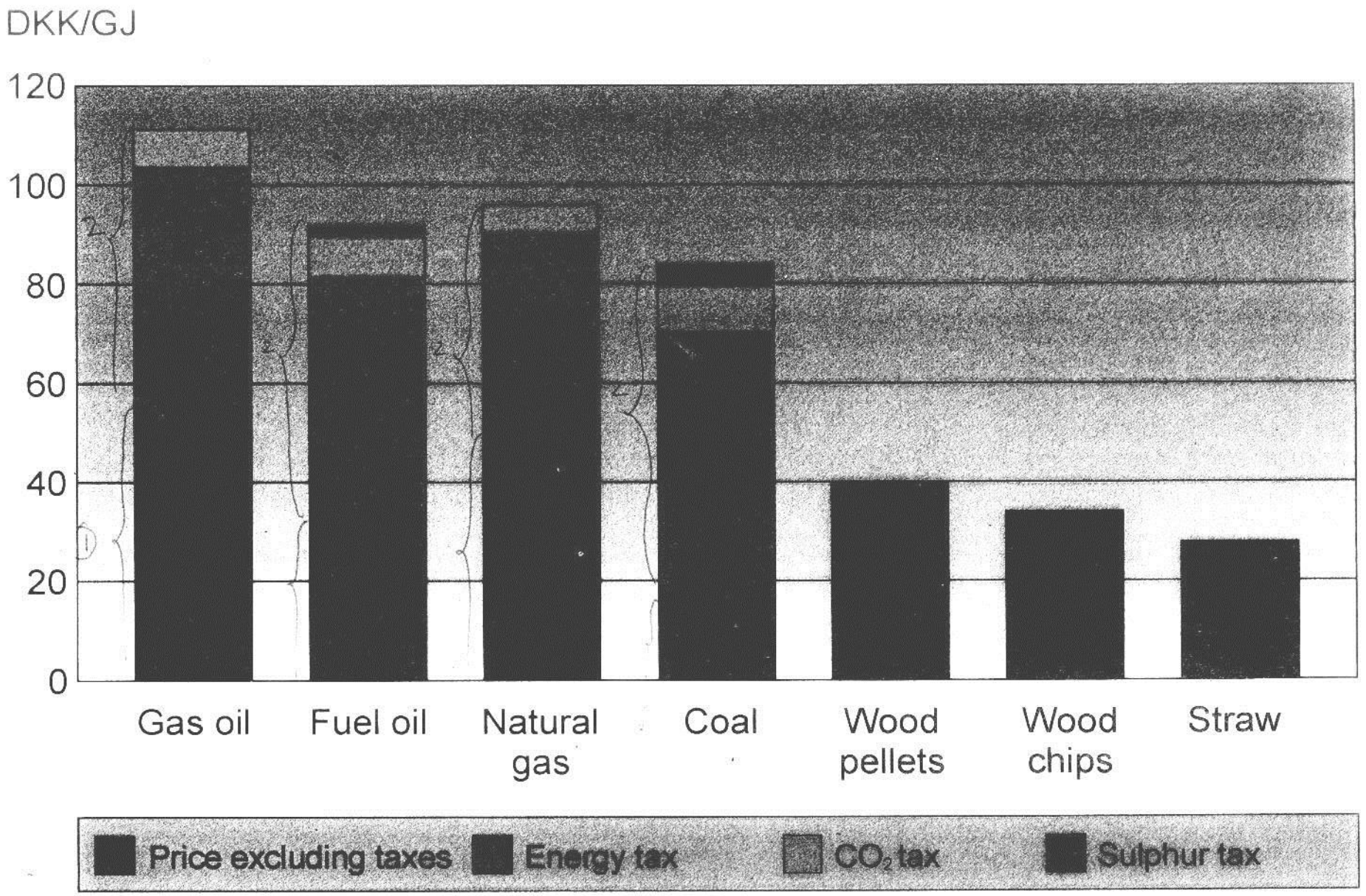
2. **The exploitation of wood residues from forestry for energy purposes.**

3. **Cultivation of wood solely for energy purposes in the form of Short Rotation Forestry.**

4. **The exploitation of waste wood resources from the consumer for energy purposes.**



Relative distribution of needles, branches, and trunks on 50 years old Norway spruces and the relative content of plant nutrients (Heding Løyche, 1984)


DKK/GJ
120
100
80
60
40
20
0
Gas oil
Fuel oil
Natural gas
Coal
Wood pellets
Wood chips
Straw
Price excluding taxes
Energy tax
CO_2 tax
Sulphur tax

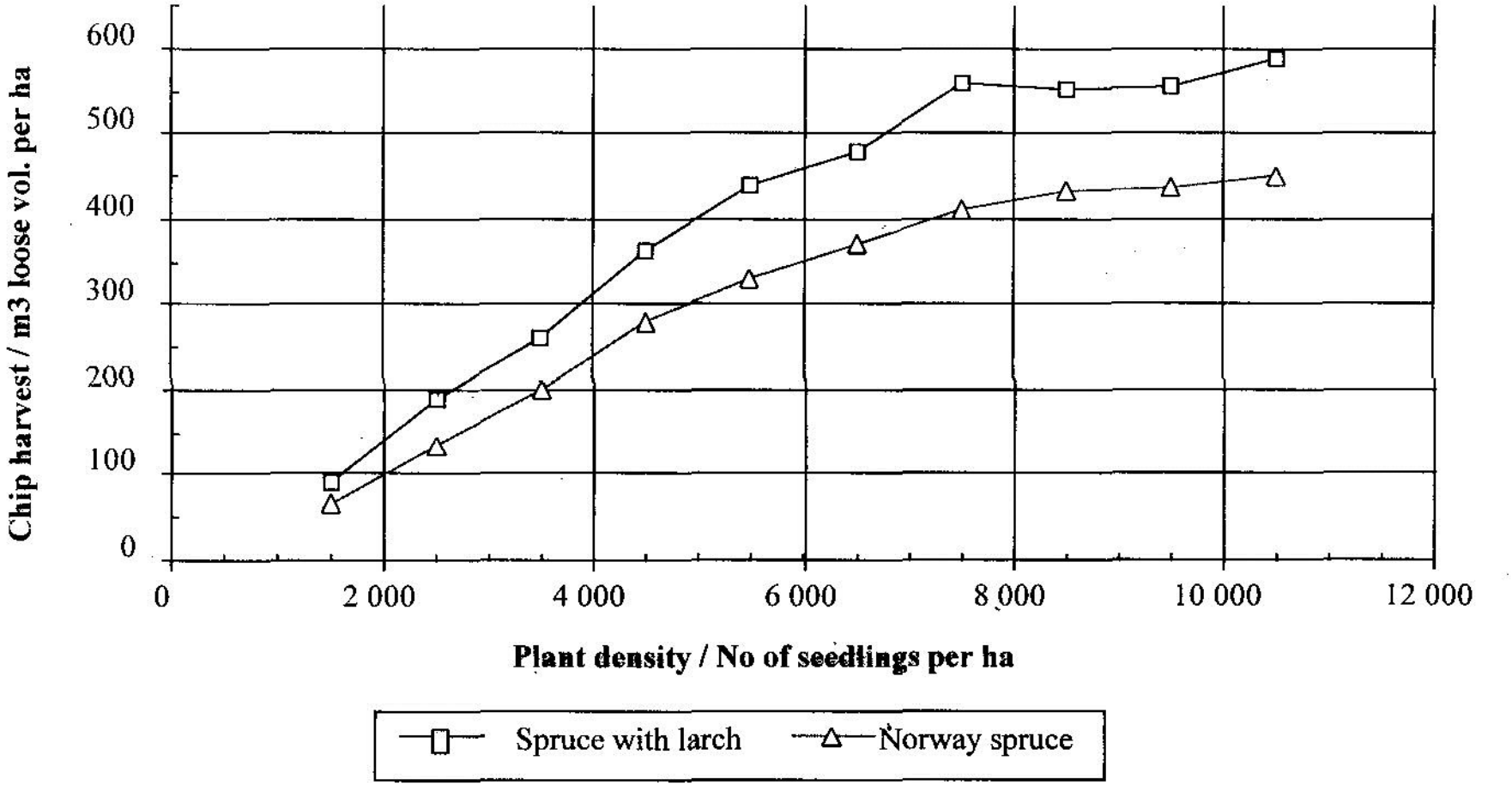
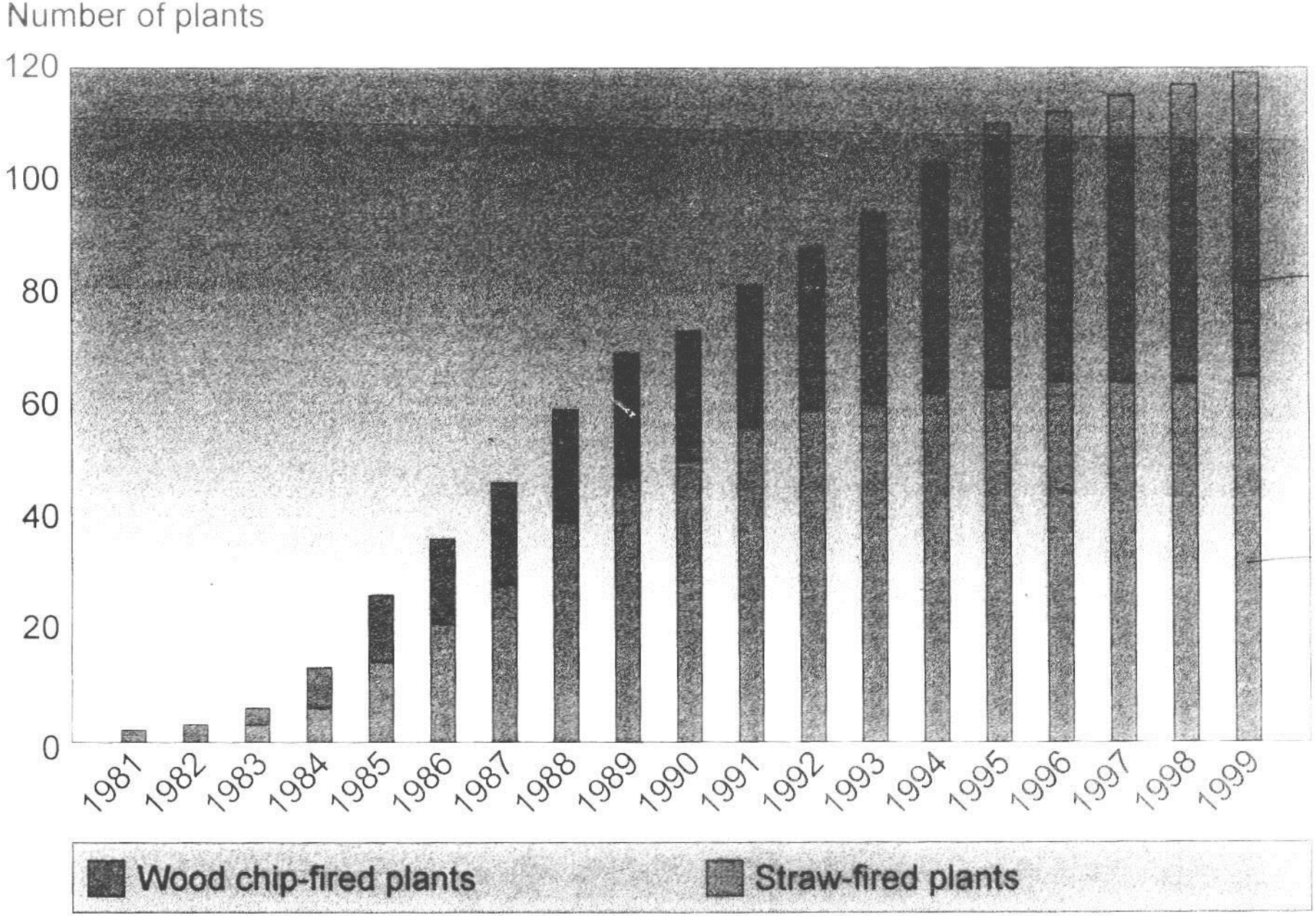


Fig. 1 Total chips harvest in m^3 loose volume per ha for Norway spruce and Norway spruce without nurse tree on a richer soil at variable plant densities.

Danish Salix plantations - production results 1989, 1990, 1991.

Plot number and clone	Average production ton dry matter/ha and year		
	1989	1990	1991
1 - 087	5,9	6,8	5,8
2 - 087	6,7	6,0	4,8
3 - 087	7,6	6,3	6,0
4 - 683	7,2	8,0	5,7
5 - 082	9,0	9,2	7,2
6 - 183	10,4	9,5	9,5
7 - 112	4,0	6,8	7,7
Average	7,3	7,5	6,7

7,2


Number of plants
120
100
80
60
40
20
0
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
Wood chip-fired plants
Straw-fired plants

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GDP, CO_2 and Gross Energy Consumption

Index 1988=100