



Economic Instruments in energy policy

Blas Mola-Yudego

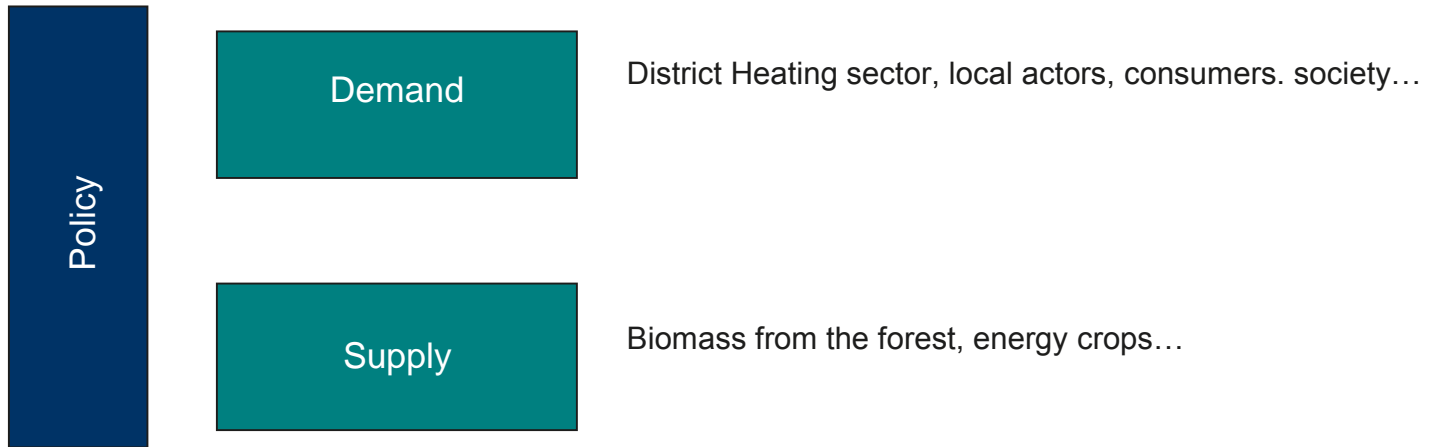
Bioenergy markets and policies

Lignoselluloosabiomassat ja niiden energiakäyttö

(6 ECTS) 3513019

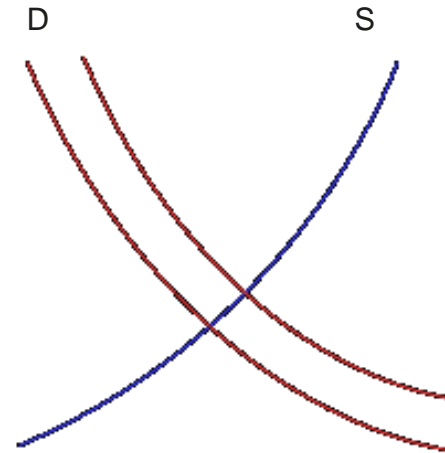
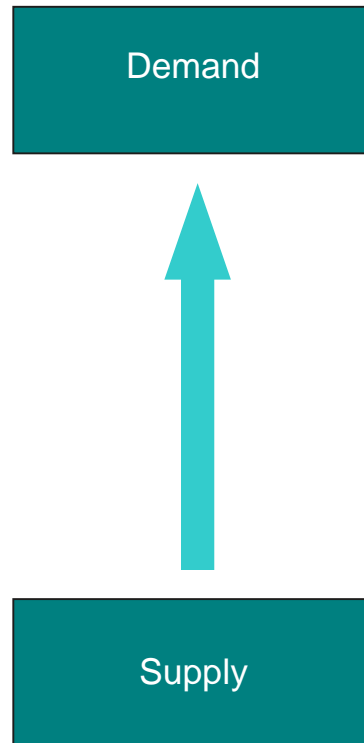
blas.mola@uef.fi

Policies and Markets

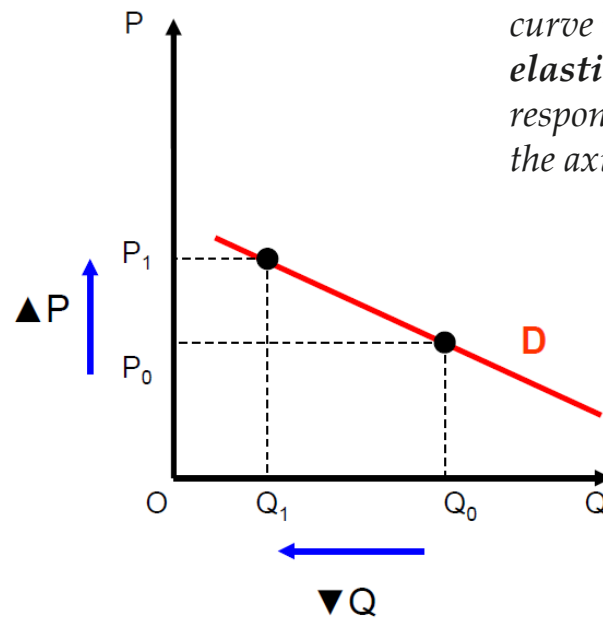
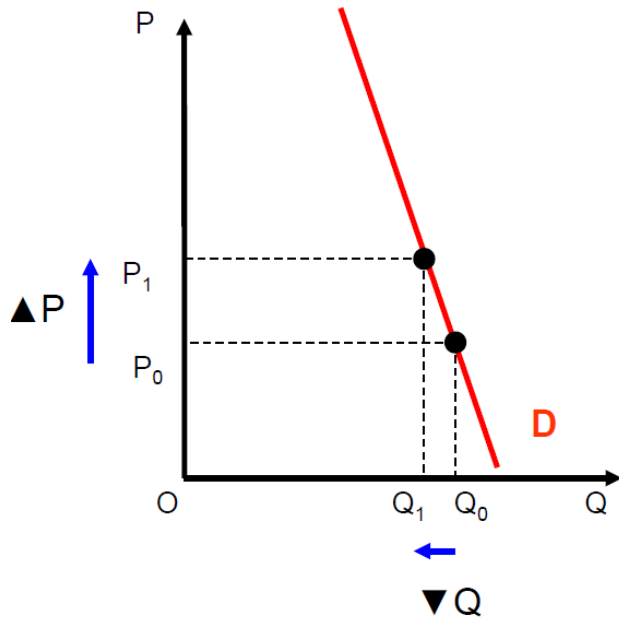


Market Economy

*The market is shaped by the demand and supply of a commodity
The price is set by the curves*



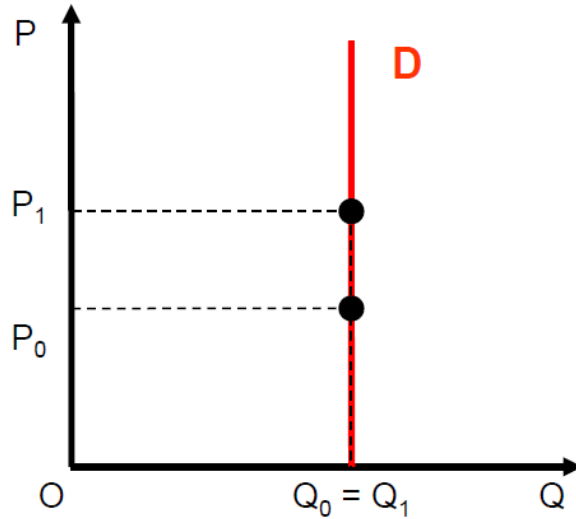
Demand curve



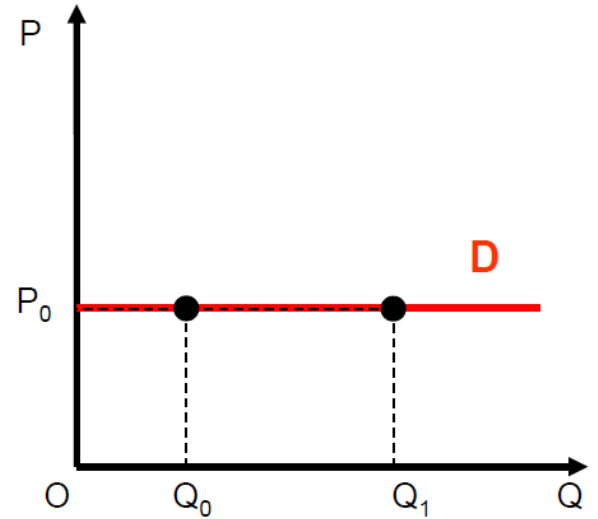
The shape of the demand curve reflect the **elasticity** (how it responds to changes in the axis)

Demand curve: elasticity

Price elasticity of demand is a measure to show the responsiveness, of the quantity demanded of a good or service to a change in its price

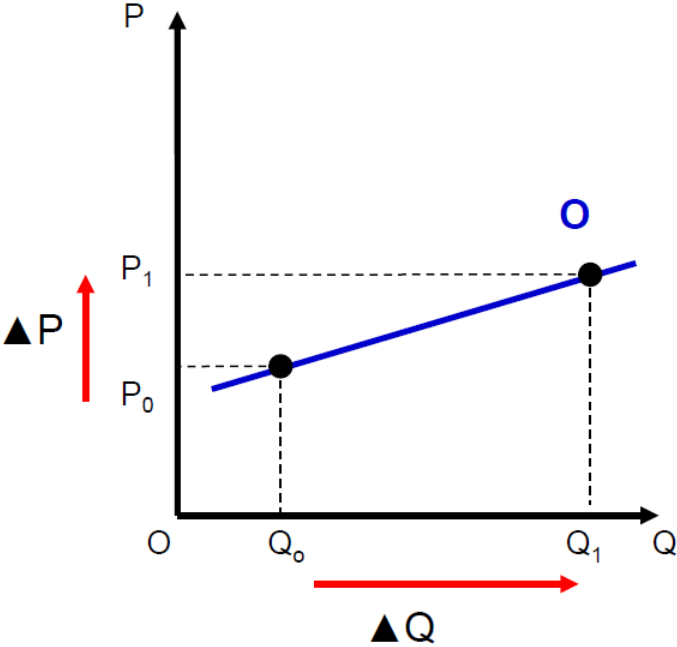
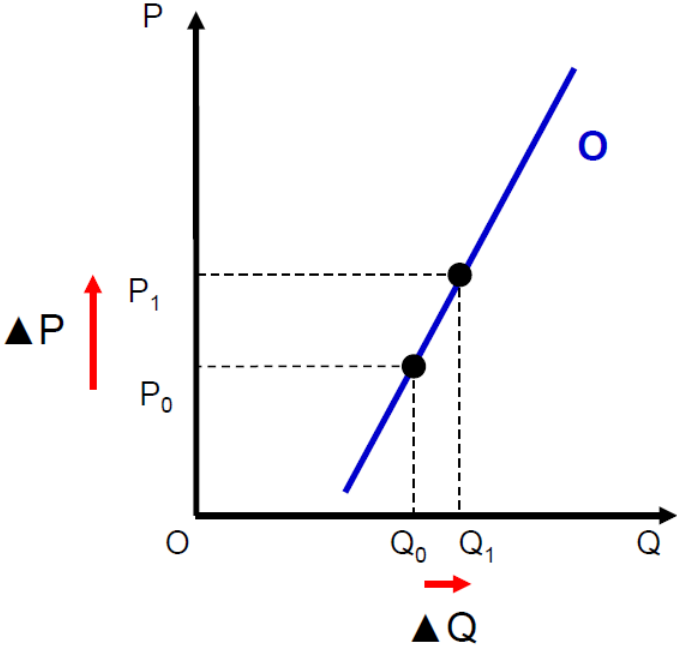


*Inelastic
(Oil, energy, food)*

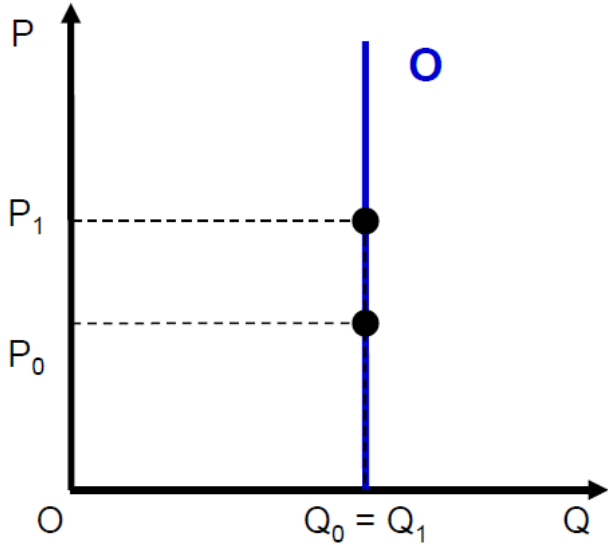


*Elastic
(highly competitive market)*

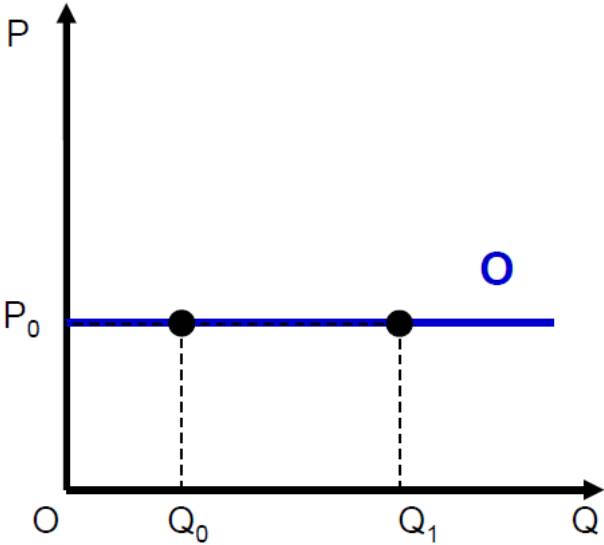
Supply curve



Supply curve

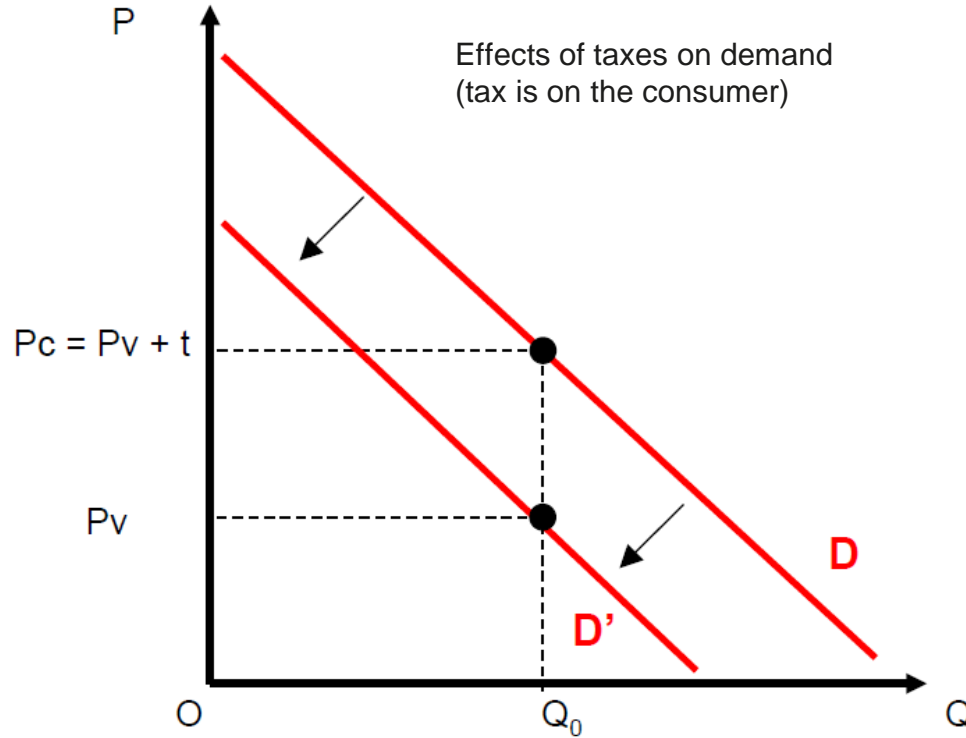


Inelastic
(Velazquez paint)

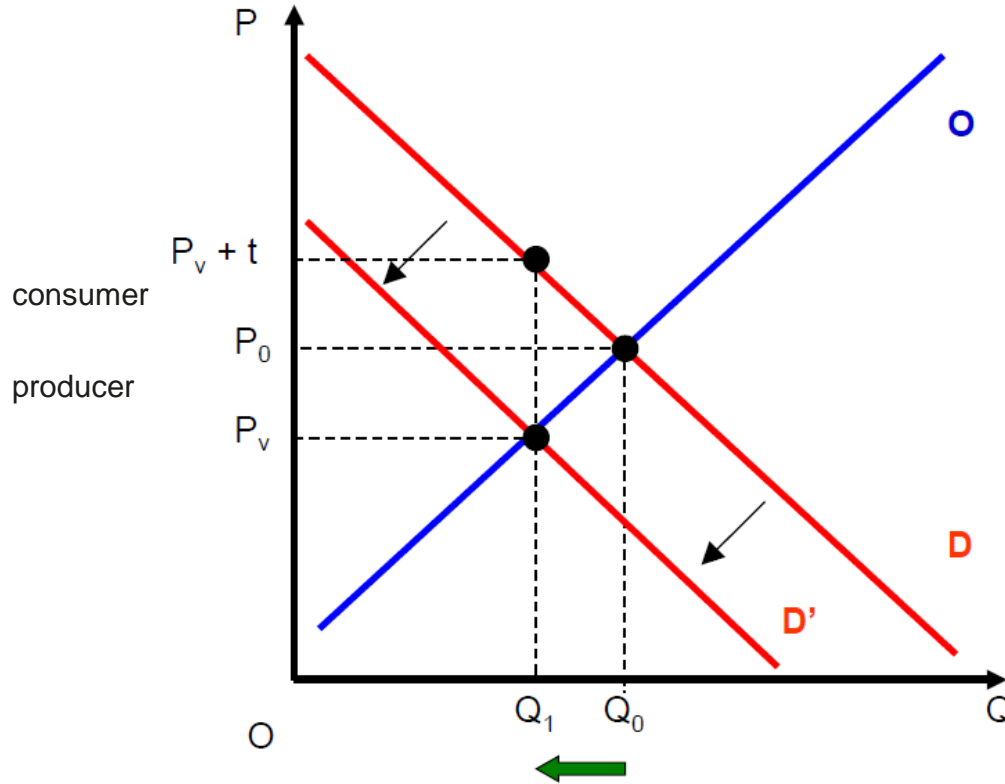


Elastic
(highly competitive market)

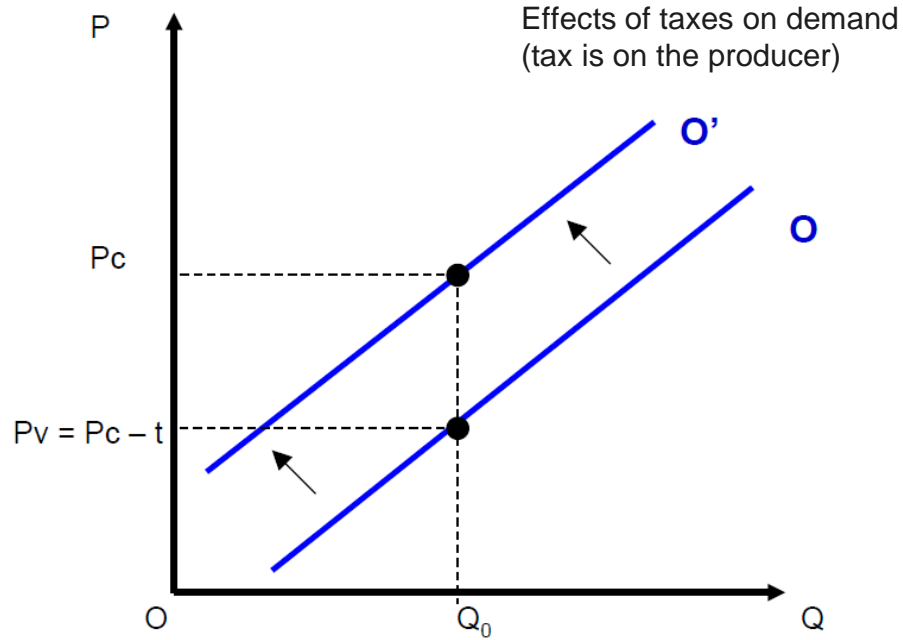
Effects of taxation (consumer)



Effects of taxation (consumer)

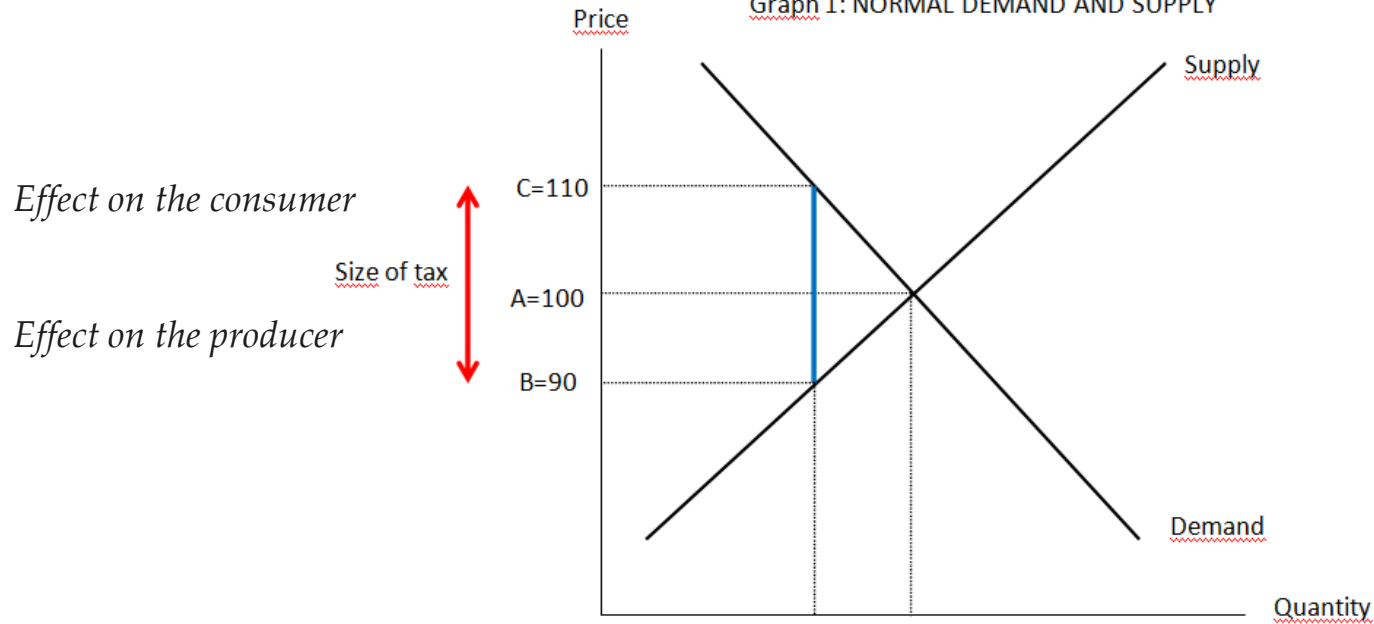


Effects of taxation (producer)



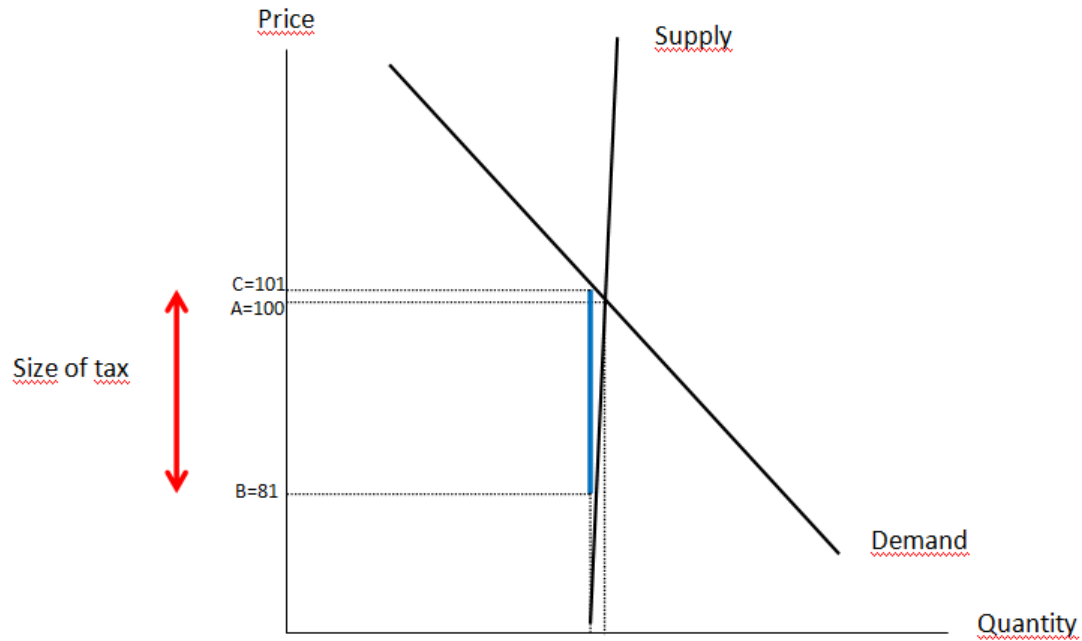
Energy policy and taxes

Graph 1: NORMAL DEMAND AND SUPPLY



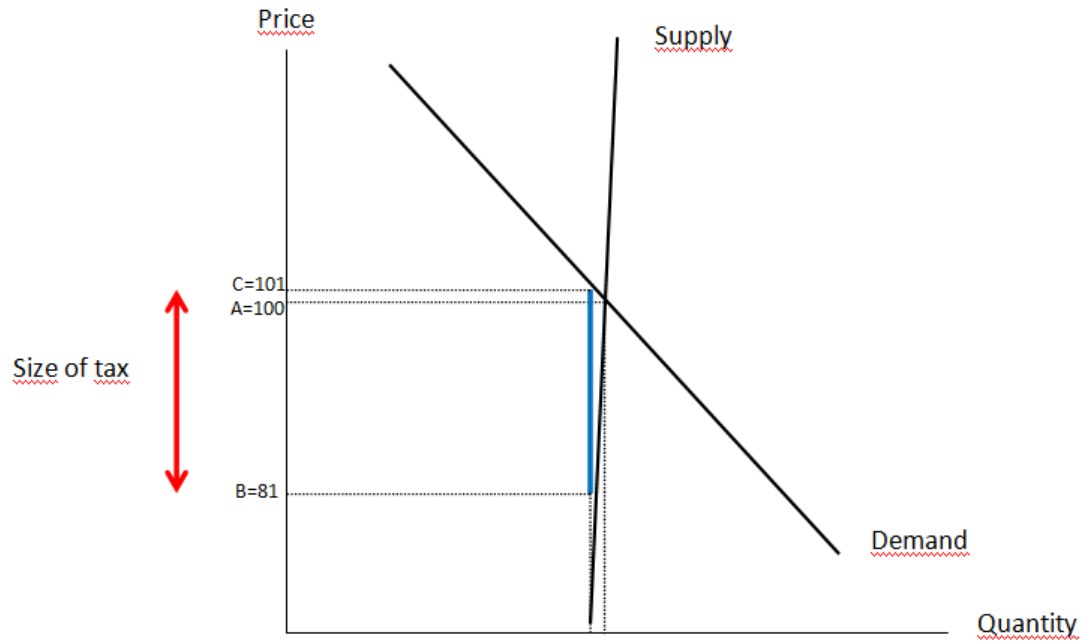
Energy policy and taxes

Graph 2: ELASTIC DEMAND INELASTIC SUPPLY

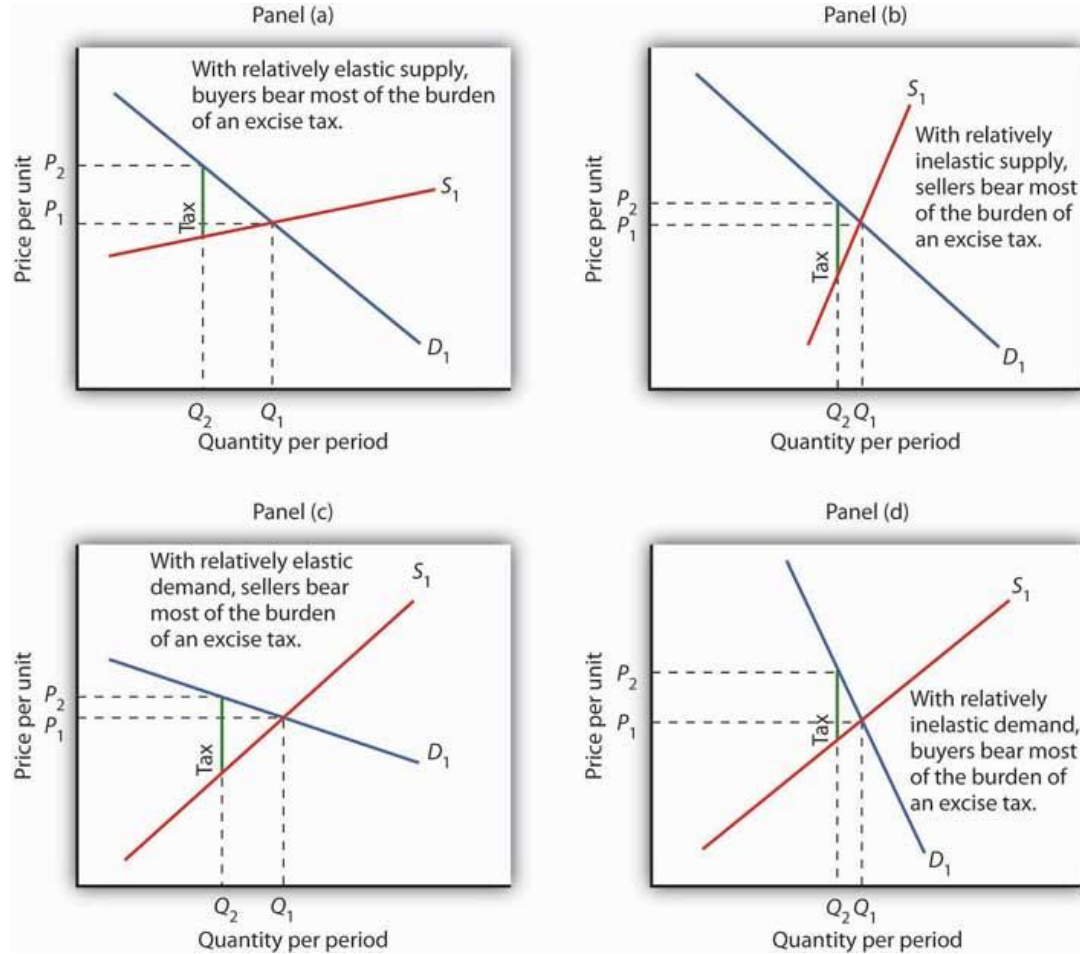


Energy policy and taxes

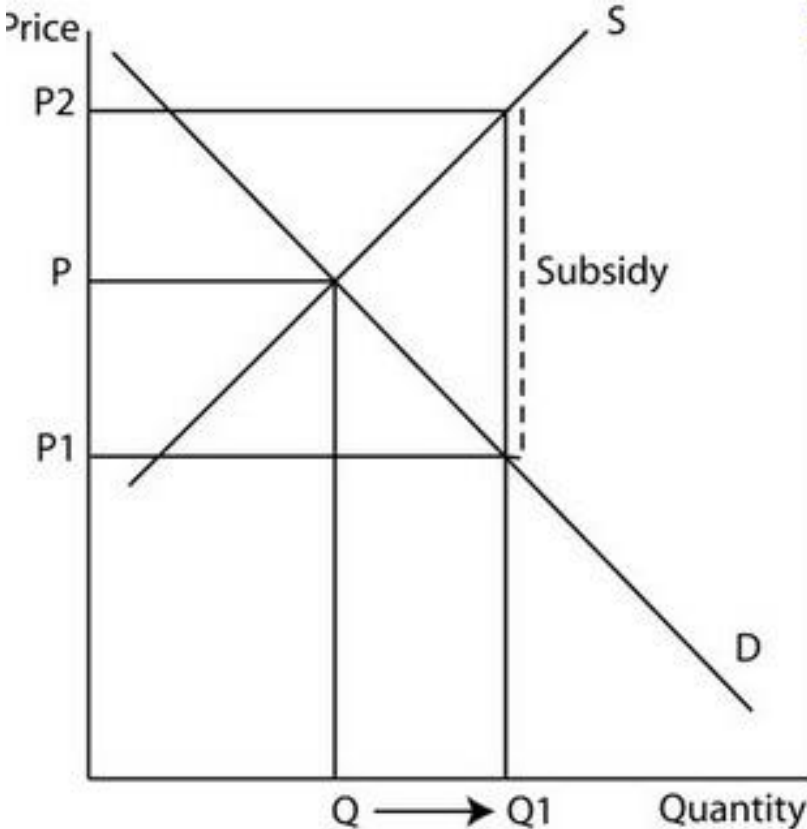
Graph 2: ELASTIC DEMAND INELASTIC SUPPLY



Tax



Subsidies



Energy policy: Sweden

Table 3.2. Revenues from energy and environmental taxes during the 1990s (million SEK). VAT is not included in the table but is levied on the total energy costs including taxes for private consumers (Ministry of Finance, 2000; Statistics Sweden, 2000a).

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Petrol tax ^a	17169	14538	14344	17544	22030	1711	-2	-	-	-
Total tax on energy products	15165	18945	18930	18706	17399	38680	45636	46945	49811	50488
Energy tax	15165	10489	9546	7875	10239	27546	30371	34212	36900	37573
Carbon tax	-	8157	9194	10641	6943	11078	15053	12599	12796	12811
Sulphur tax	-	299	190	190	217	146	212	134	115	104
Tax on nuclear power	130	139	117	116	137	133	974	1478	1537	1553
Tax on hydro power ^b	1018	896	1030	1026	817	908	1423	194	-	-
Special tax to combat acidification	57	73	63	58	63	69	64	58	58	65
Environmental tax on domestic air transport	27	156	168	190	271	177	128			
Sum of energy and environmental taxes	33566	34747	34652	37650	40717	41678	48223	48675	51406	52106
% of GDP	2.5	2.4	2.4	2.6	2.7	2.5	2.7	2.7	2.7	2.6
% of state income	8.3	8.6	8.7	9.9	10.8	9.8	8.0	7.5	7.3	7.2

a. In 1996 the petrol tax was transformed into an energy tax.

b. The tax on hydro power was removed in 1997 and replaced by a real-estate tax which is not included as an energy or environmental tax in this table.

Energy policy: Sweden

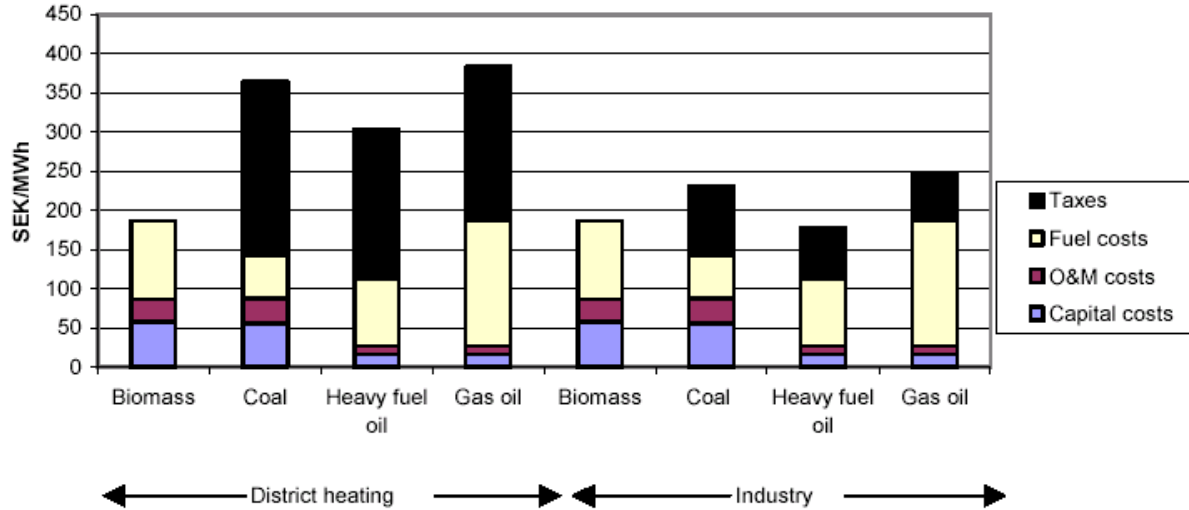
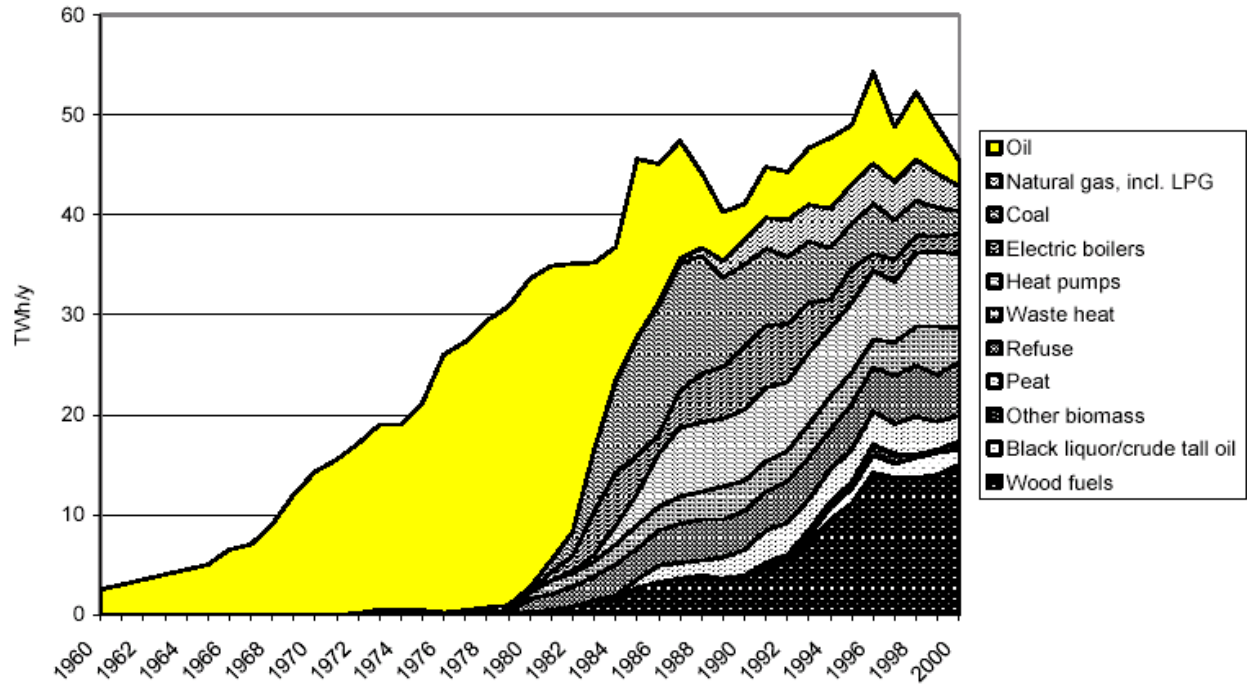


Figure 3.1. Heat production costs for new plants (Swedish National Energy Administration, 2000b). The calculations are based on taxes applicable in 1999, levels which have been decisive in the development of biomass use. Since 1999 the carbon tax on fuels for district heating has increased by 75%, while taxes on fuels used in industry have not changed.

Energy policy: Sweden



Energy policy: Sweden

Effects of the taxation on the use of biomass by the district heating systems

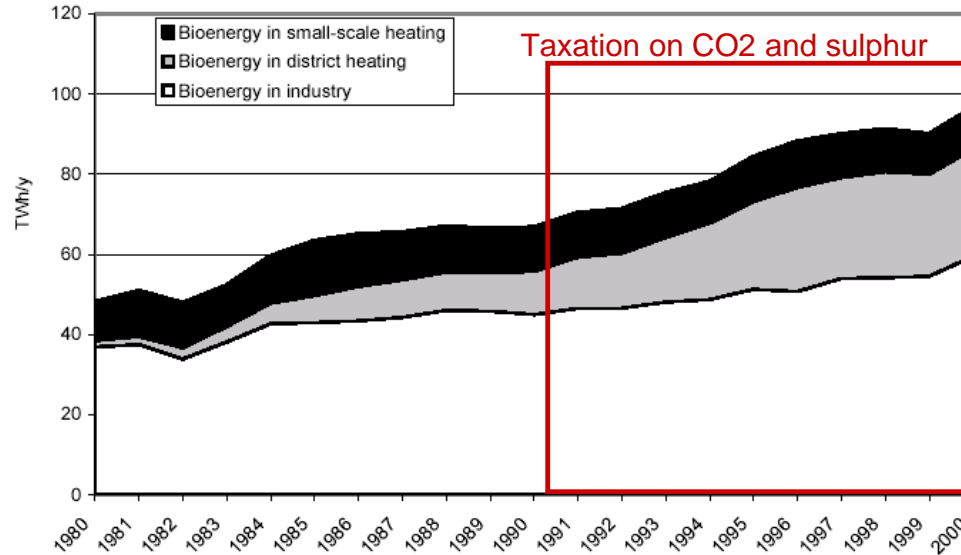
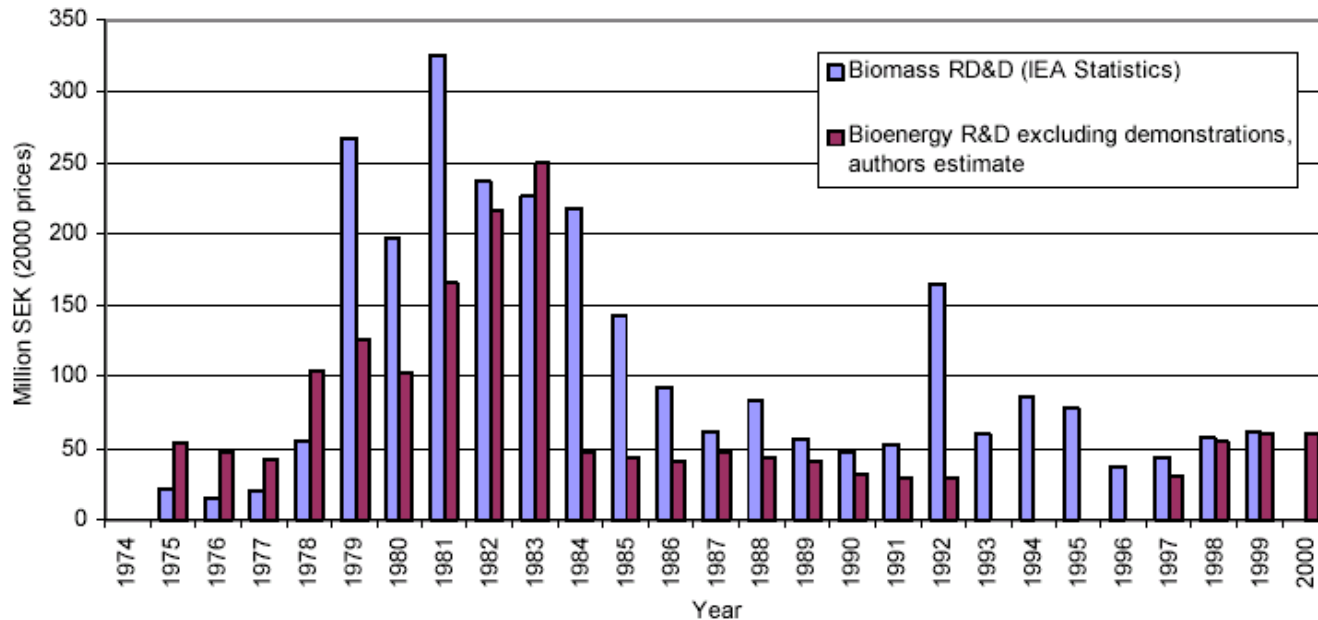


Figure 2.3. Development of Swedish bioenergy use (including waste and peat) between 1980 and 2000 (Swedish National Energy Administration, 2001).

Energy policy: Sweden

Sweden



Energy policy: Austria

- capital grants
- local initiatives rooted in a mix of environmental concern
- self-interest of forest-owning farmers
- build-up of know-how and networking among the main stakeholders involved
- 1999 techno-economic performance guidelines as a minimum standard for obtaining grants: improve the technical efficiency and economic viability of plants

R. Madlener / Energy Policy 35 (2007) 1992–2008

1997

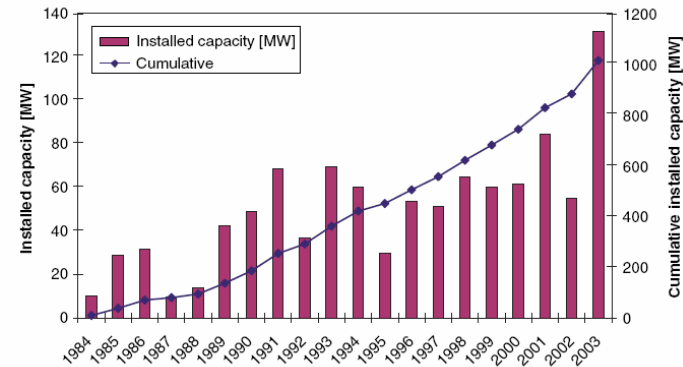
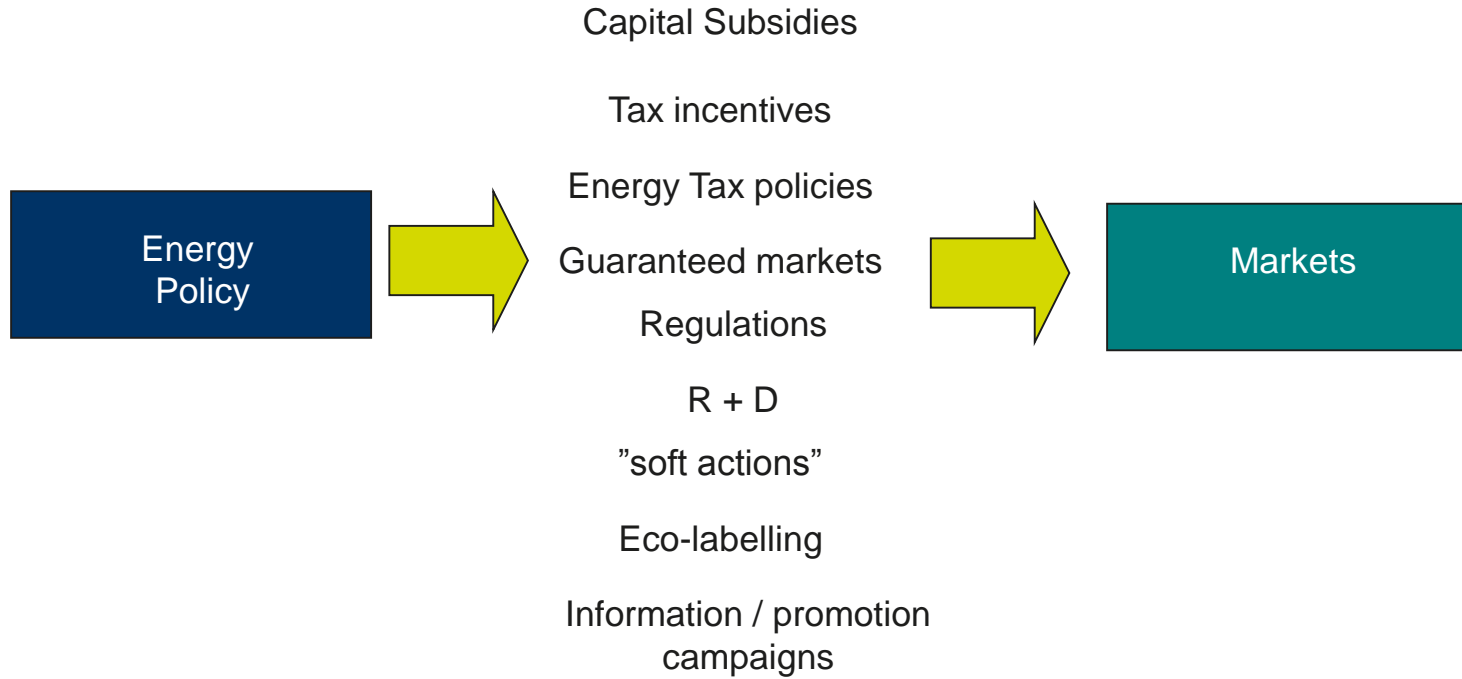


Fig. 3. Development of biomass district heating systems in Austria, 1984–2003 (total: 843 plants). Source: REACT (2004), Jonas and Haneder (2004), own illustration.

Policies and Markets



Policies and Markets

Finland

Financial instruments

Tax relief for all fuels used for electricity generation (**tax incentive**)

Feed-in tariff for wood fuel based small-scale CHP (**operational subsidy**)

Investment subsidy for biomass

Energy taxation for fossil fuels used for heat generation

Regulations

Obligation to distribute biofuels to the transport market

Policies and Markets

