

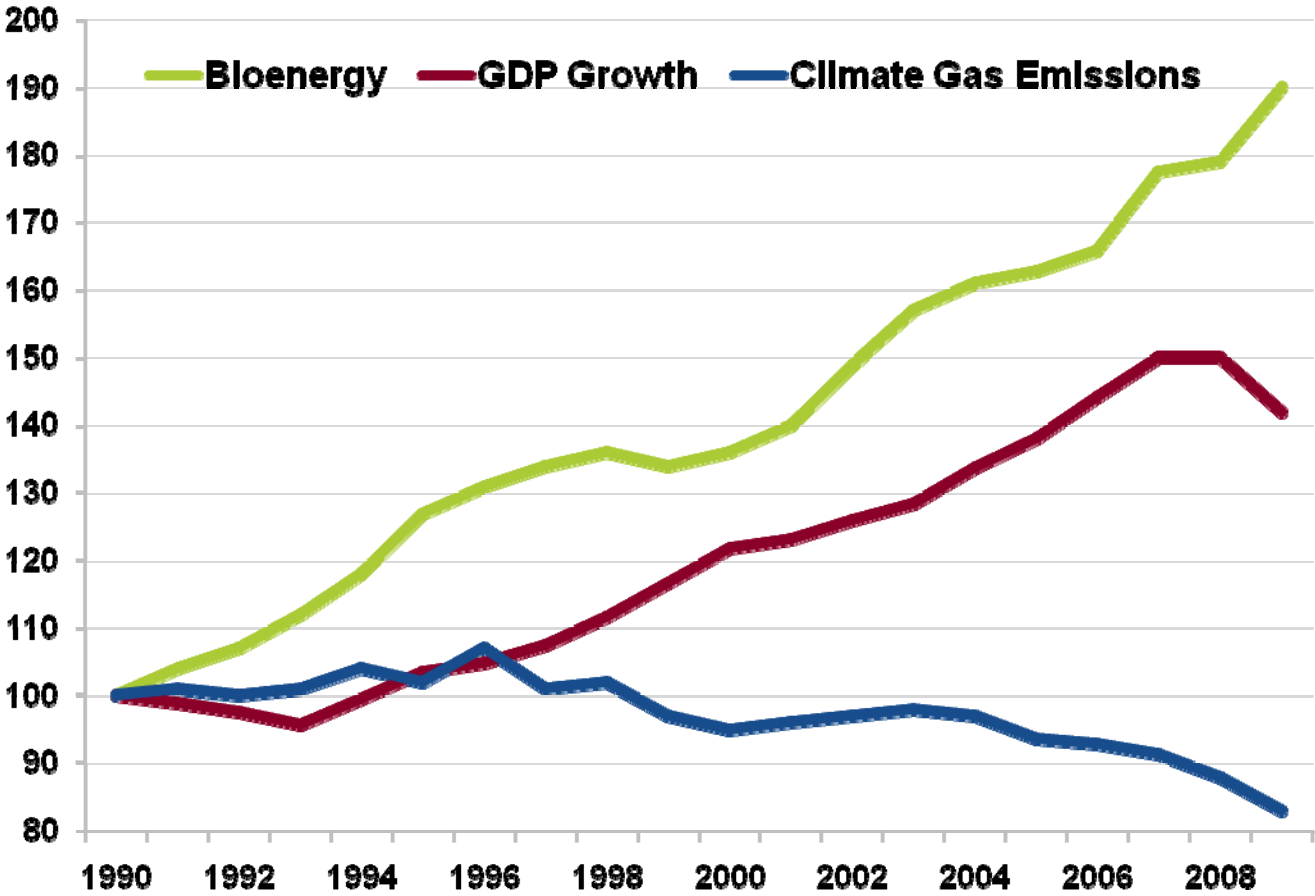
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# Sustainability of solid biofuels – a practical system is needed to guarantee supply

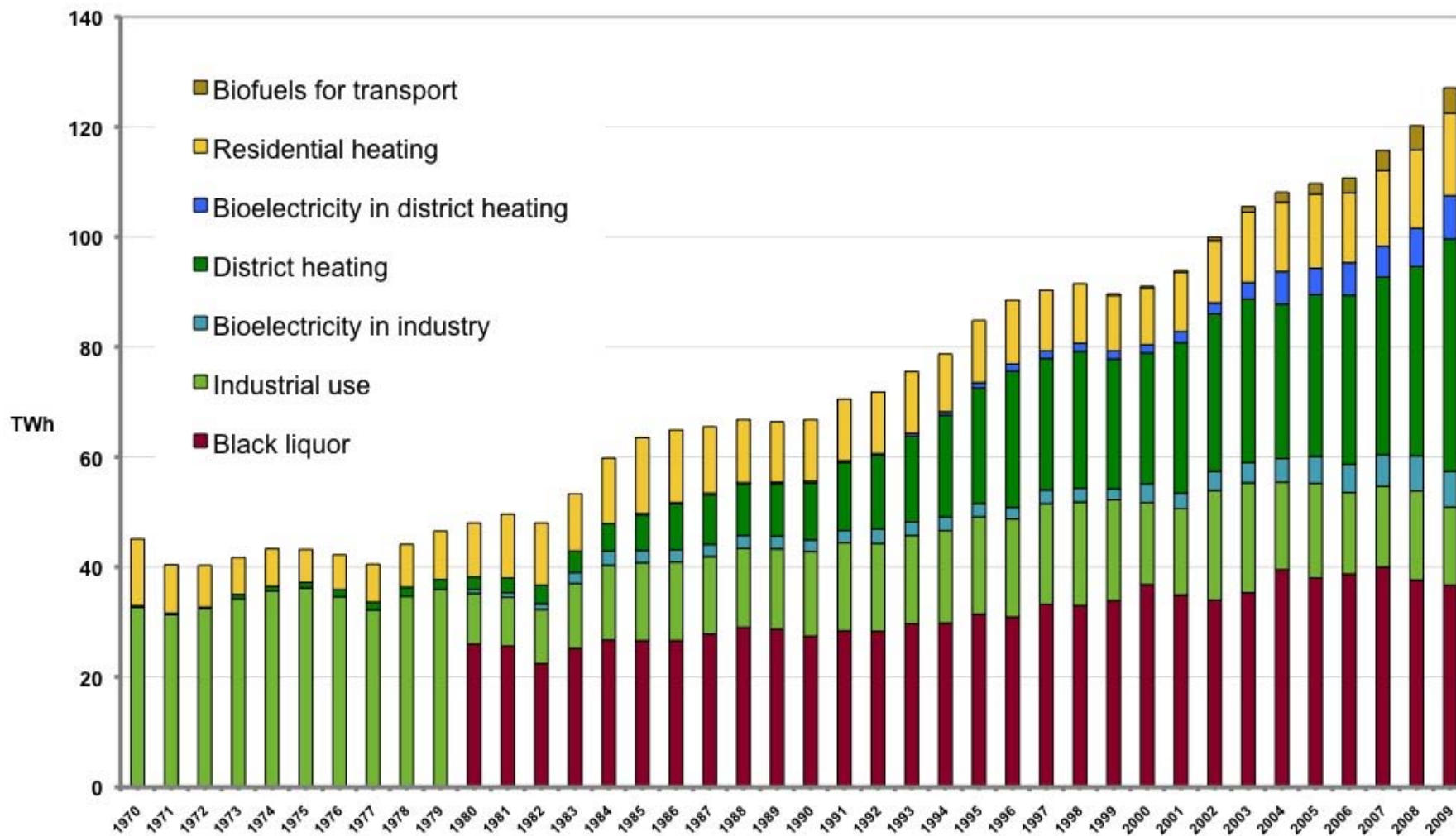
Kjell Andersson

Svebio – Swedish Bioenergy Association

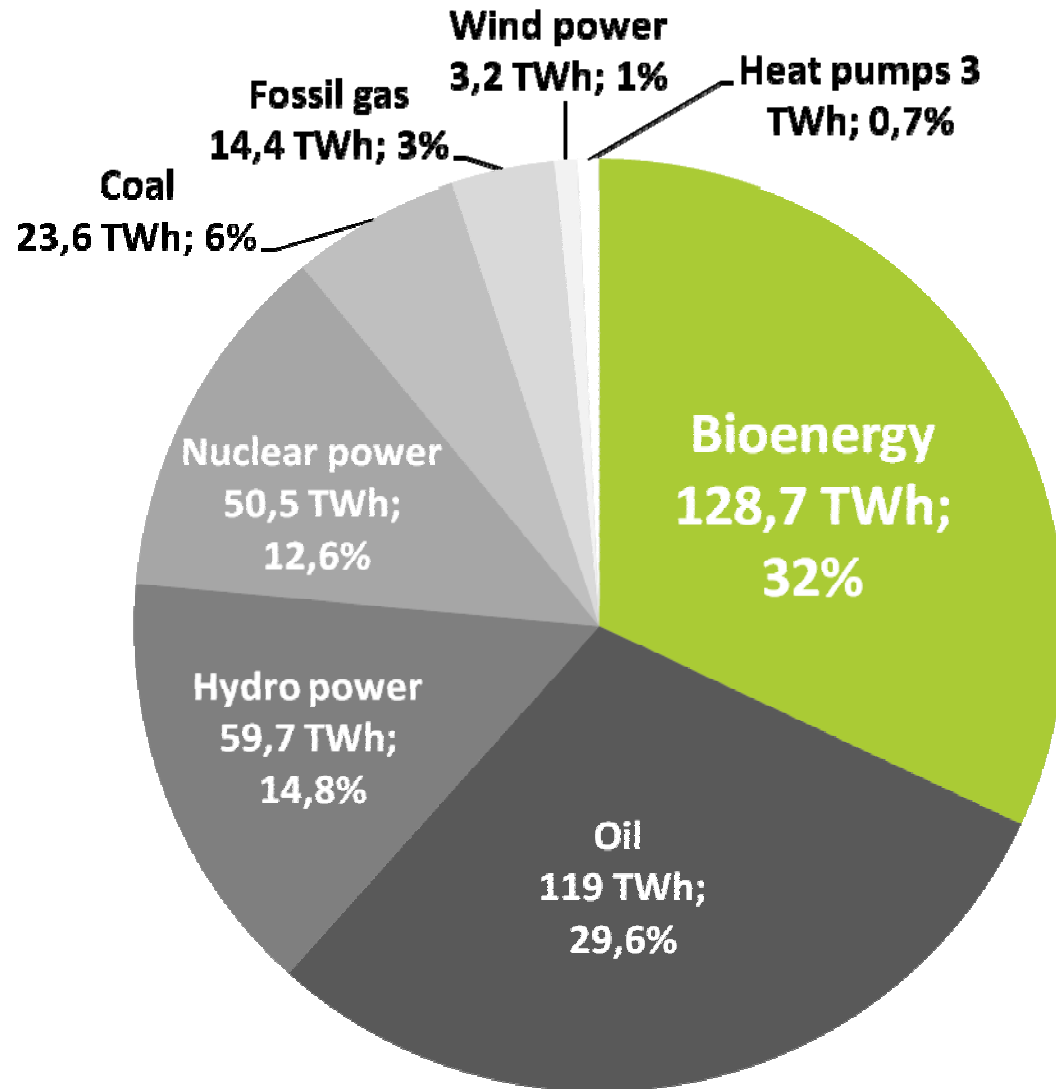
# Increased GDP and reduced emissions with more bioenergy



# Swedish bioenergy use 1970 - 2009

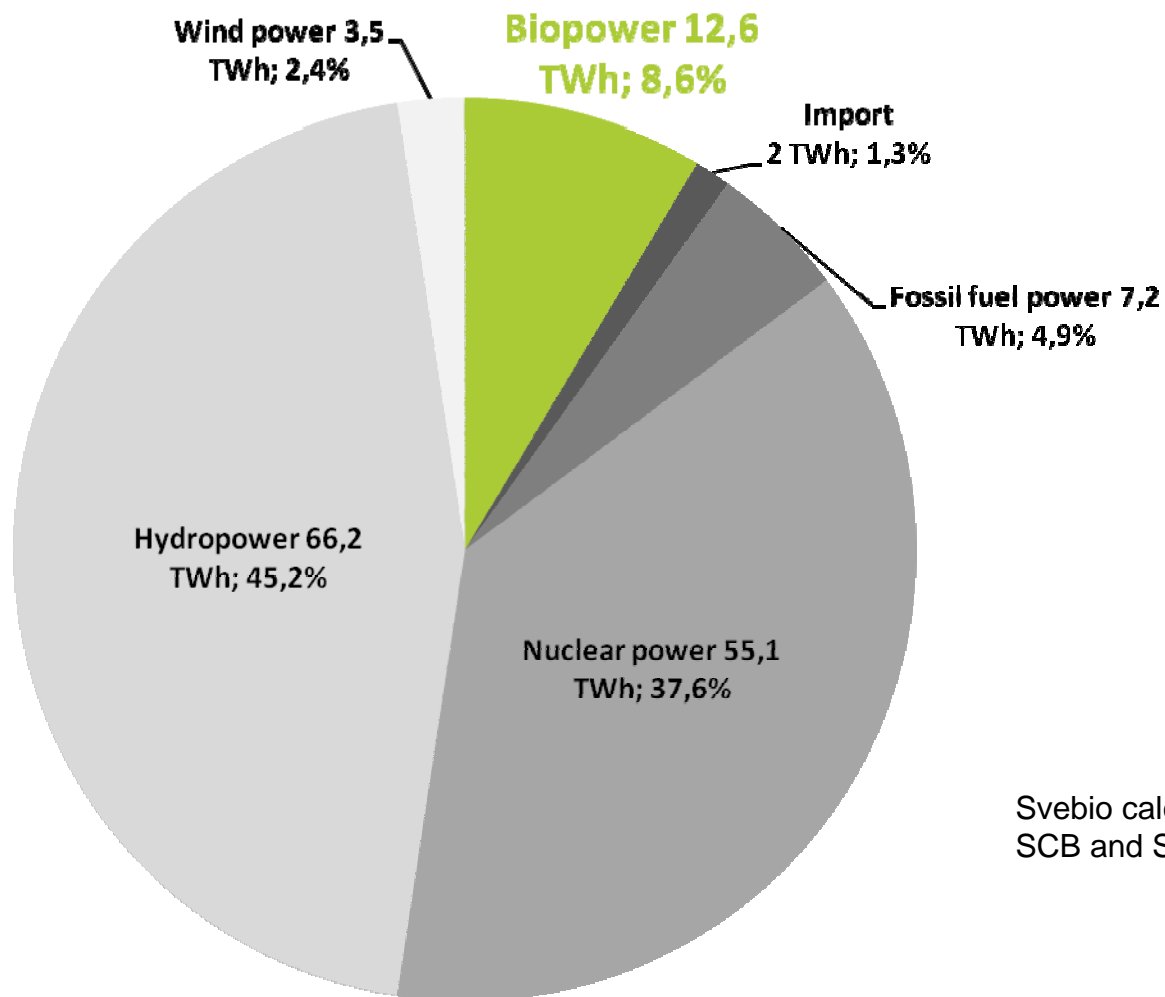


# Share of final energy use in Sweden 2010



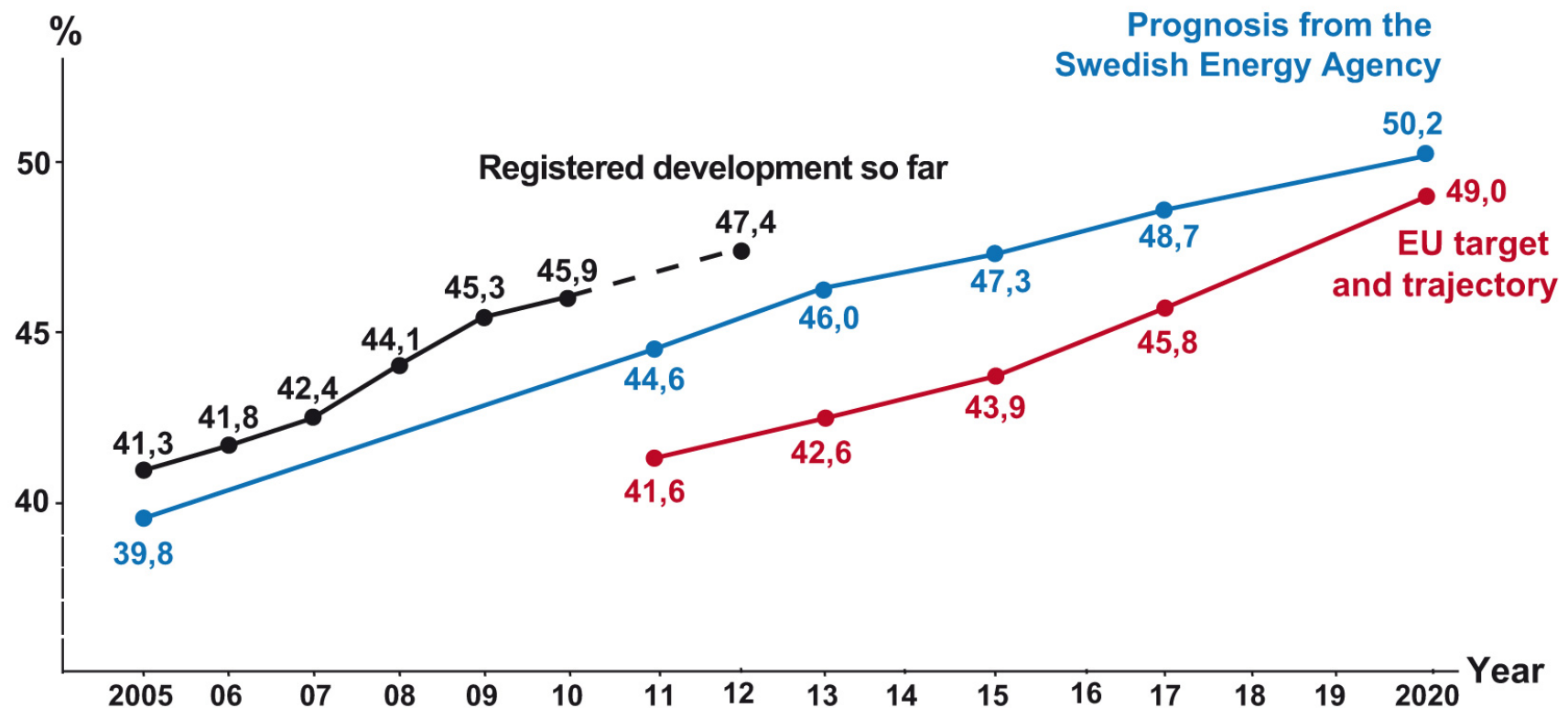
Svebio calculation based on Swedish Energy Agency forecasts.

# Electricity production 2010



Svebio calculation based on statistics from SCB and Swedenergy.

# Share of renewable energy in Sweden's energy use



# Forest biomass management

Haulage/collection of forest residue.



Covered pile of forest residue is chipped for the heating season.



Chipping of forest residue.



Thinning near populated areas.



Stubs collected for crushing.



Bundling of forest residue.



Storage of composite residue logs.



Chips vehicle.



Spreading of ashes.

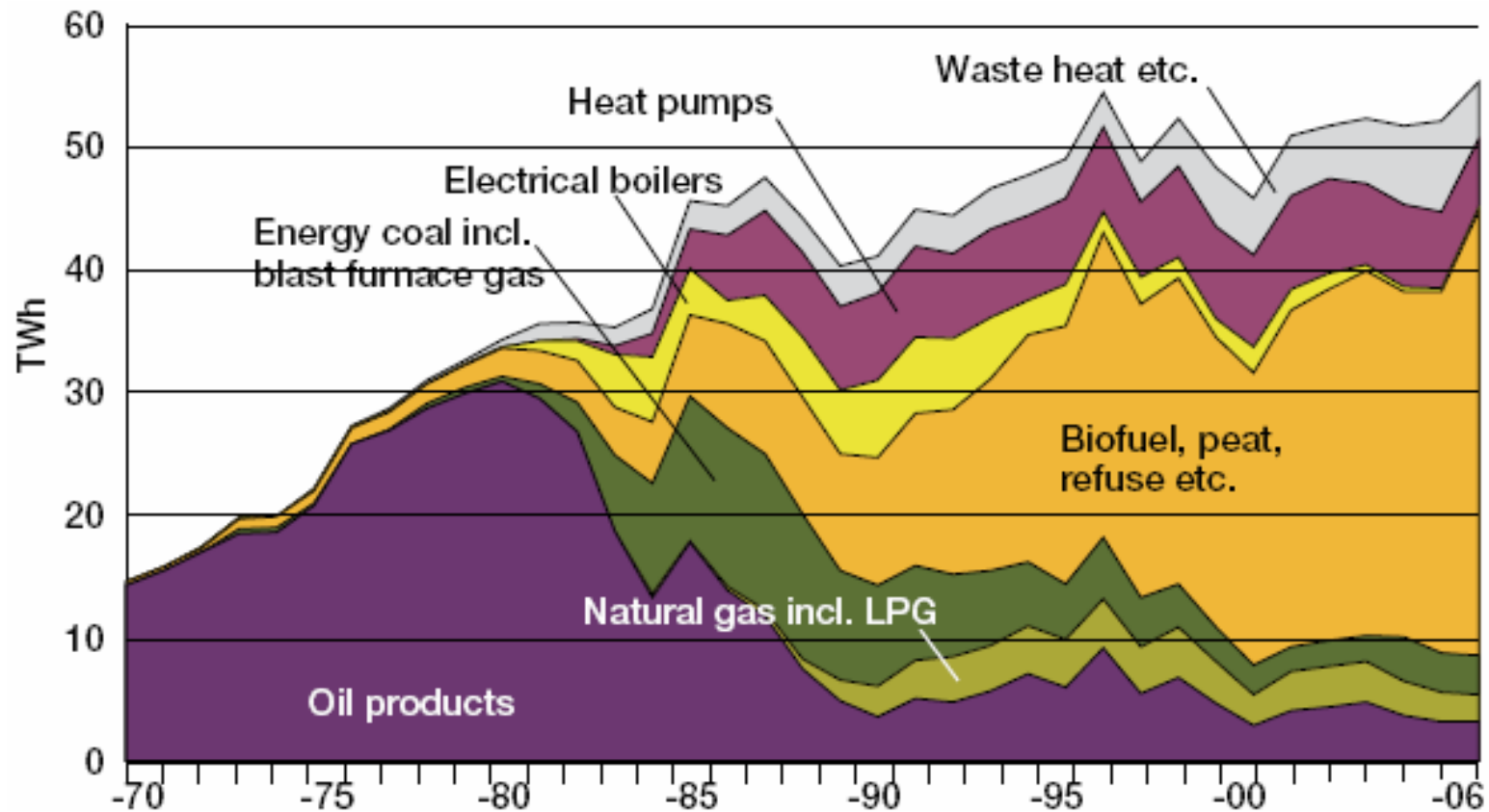


Forest residue (branches and tops), is collected at our timber felling areas and can be chipped directly, but is usually stored in piles near passable roads for transport to district heating plants during the heating season. It is beneficial to bring the ashes back to the forest.

# Example CHP in Östersund



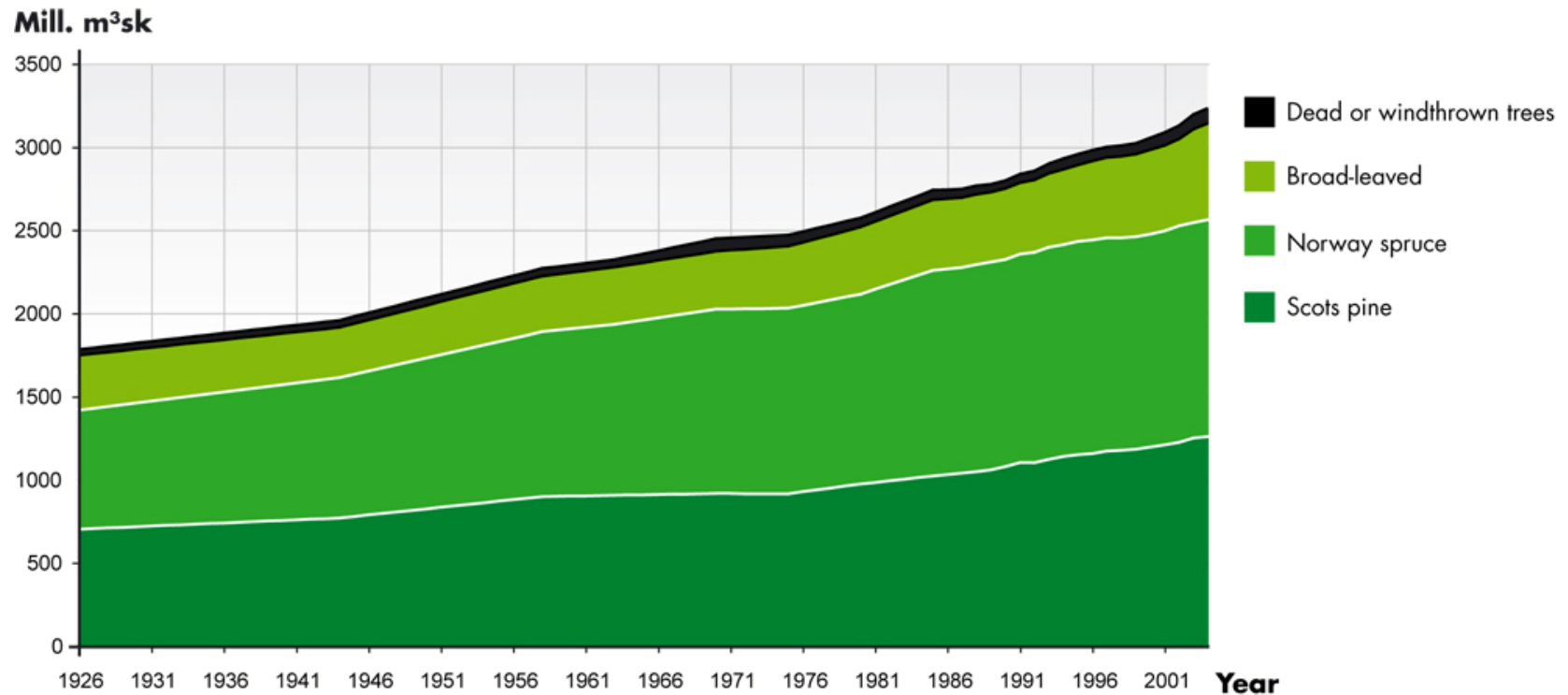
# Biofuels take over district heating



Heat plant around 1 MW using local wood chips and supplying heat to village with school, a few apartments buildings, and small industries



## Trend for total standing volume since 1920, all land-use <sup>1</sup>



<sup>1</sup> Excl. high mountains, restricted military areas, urban land and water surfaces.  
Millions cubic metre standing volume (stem volume over bark from stump to tip)  
Source: National Board of Inventory

# How much is available after cutting down the trees?

