



Energystatistics

***IPCC joint meeting 13-14
december, 2017 Paris France***

Niklas Notstrand

**Senior adviser in Statistics and
Methodology**

Swedish Energy Agency

Overview of the presentation

- **First part is background of the Swedish official statistical system.**
- **Second part is focused on Swedish Energy Agency responsibility of energystatistics**
 - **Design, methods, datacollection**
 - **International reports**

Last part IPCC

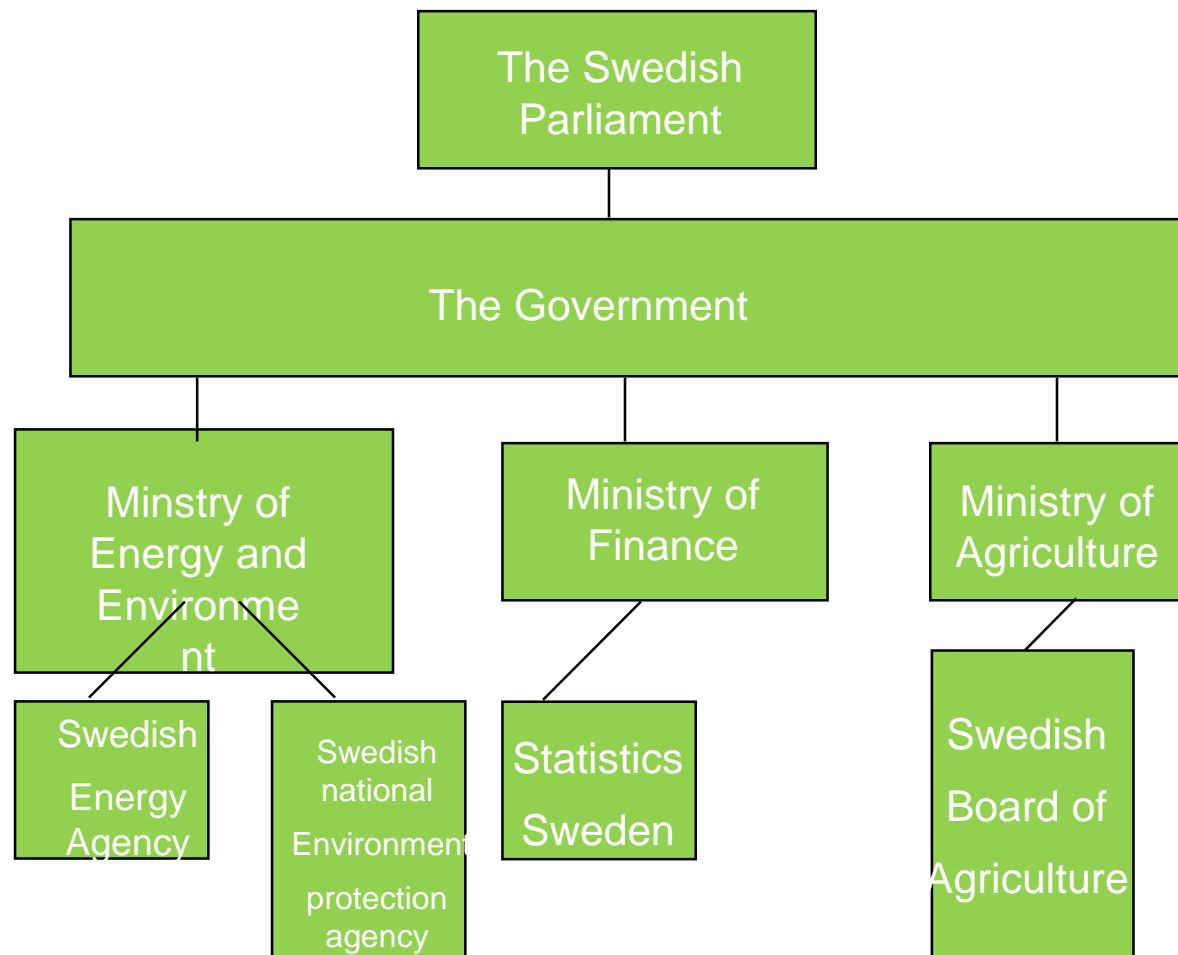
- **SMED**
- **Graph of international system**
- **Problems**
- **Definitions, klassifications, system limites, methods (calorific values, emission factors)**

What is the role of authorities responsible for statistics in Sweden official statistics system

Law 2001:99 and Ordinance 2001:100

- According to Statistics Ordinance: Government to decide on subject areas and underlying statistical fields as well as the responsible authority
- Authority decides what statistics to produce in respective fields
- Authority receives appropriations for a specific activity area
- Authority determines how much is invested in statistics within their field

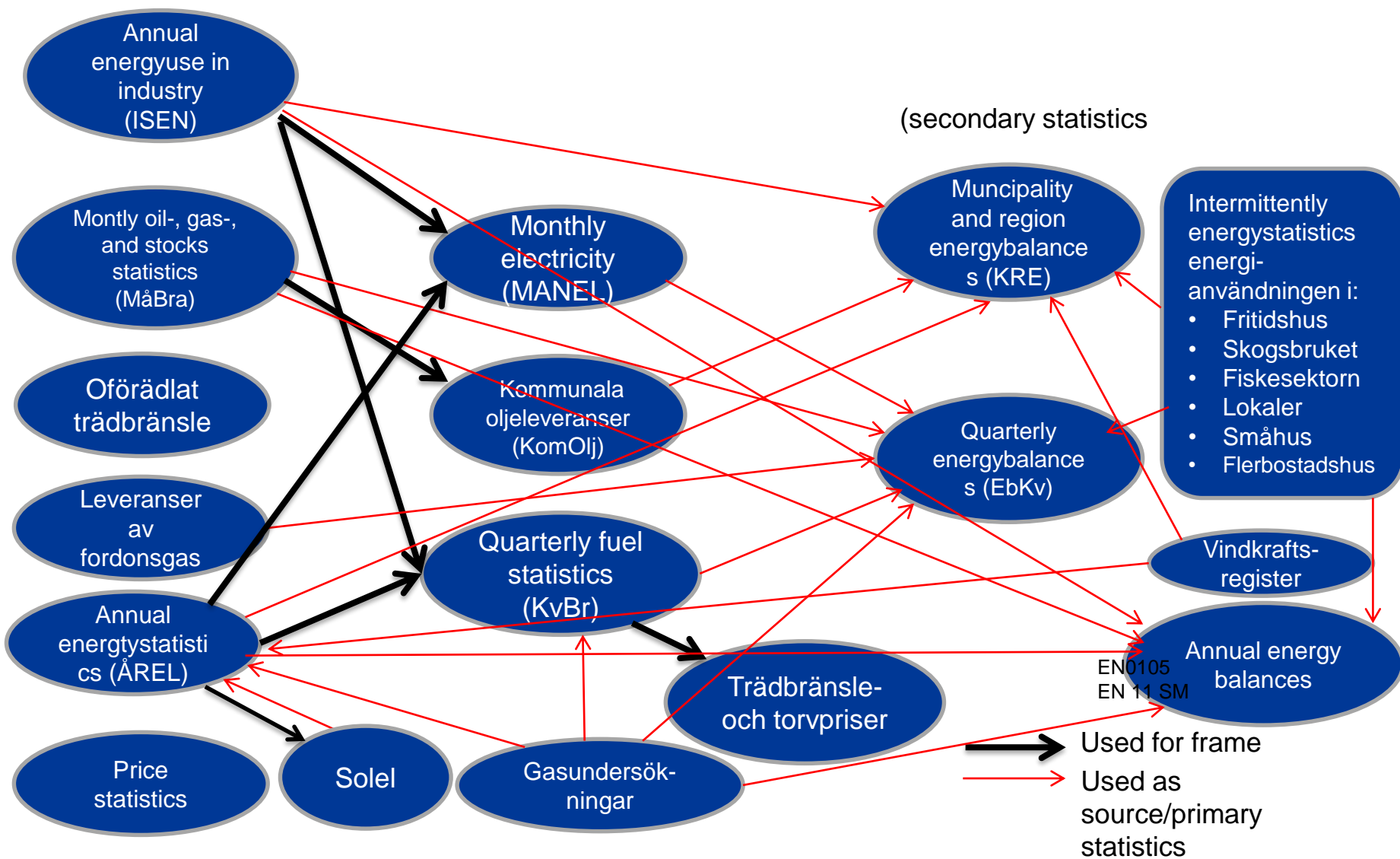
Statistical responsibility in the national administration

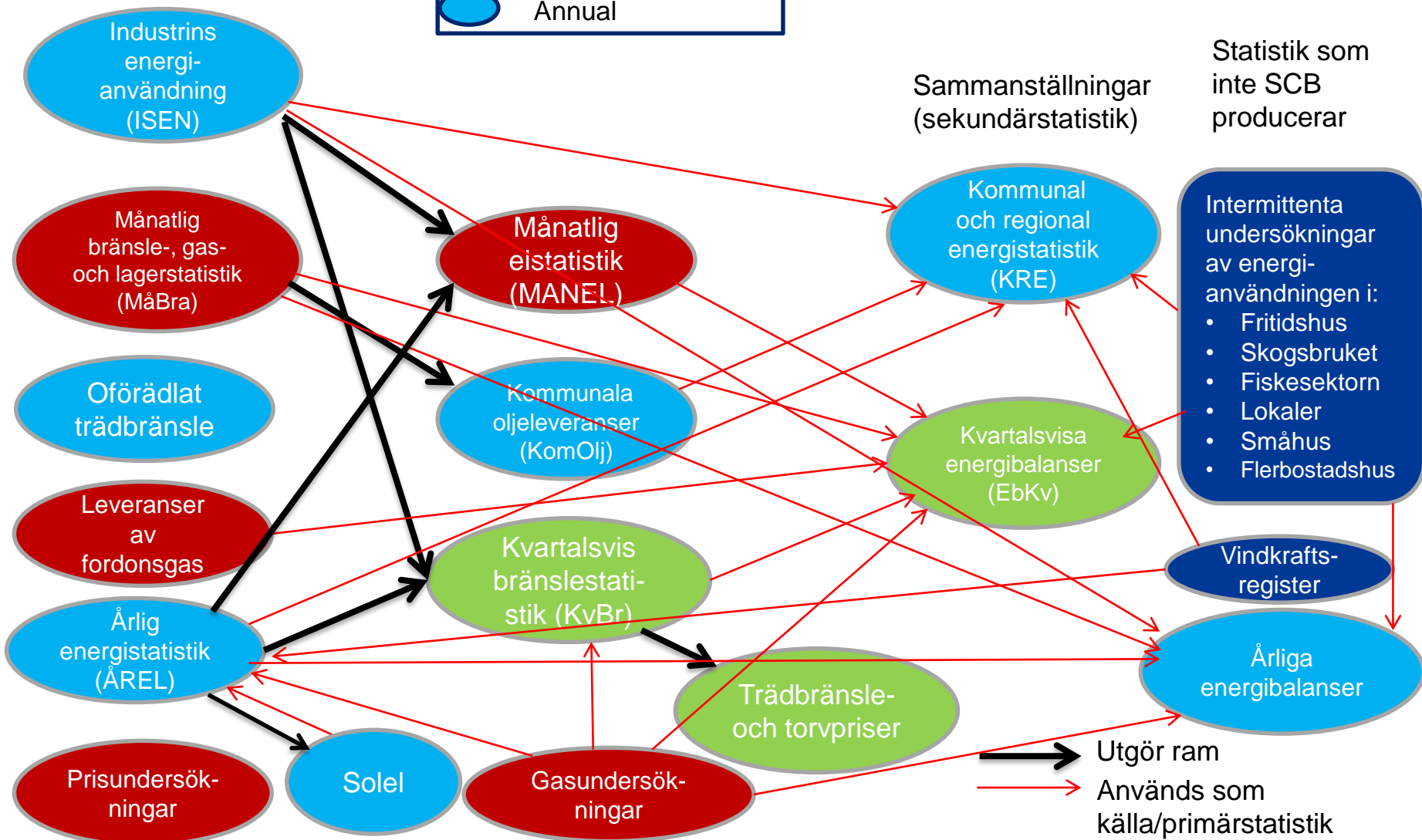
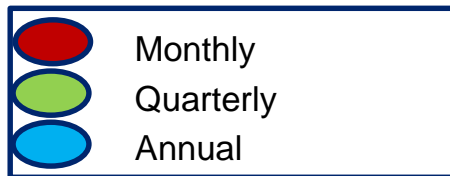


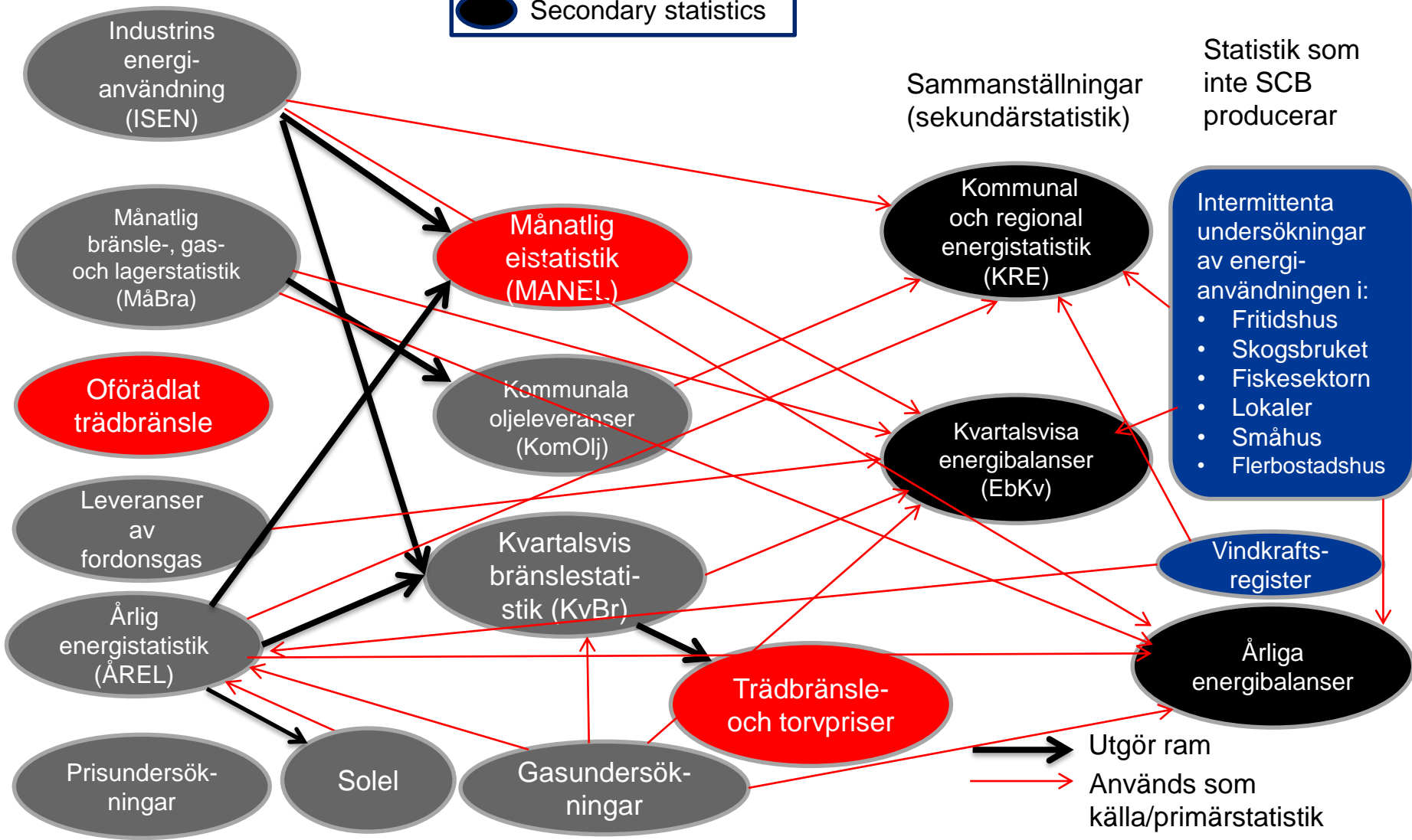
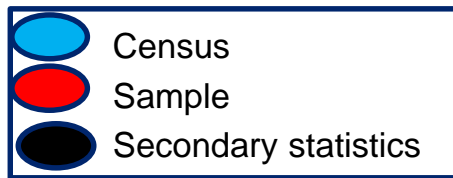
Official Statistics in Sweden

- A decentralized system
- The most important user have the responsibility for the subject area
- 28 national authorities are responsible for official statistics









Monthly oil-, gas-, and stock statistics

- *Population:* About 80 coal- and oil trading companies. A handful distributors of natural gas. A sample of about 100 industrial enterprises and electricity, gas, and district heating supply enterprises.
- *Variables:* Quantity of stocks, imports, exports, production, own consumption, bunkers for foreign shipping and deliveries to consumers and retailers. Supply, consumption and deliveries of natural gas. Stocks of domestic heating oil and heavy fuel oils.
- *Publishing:* Statistical report, special web-report, Swedish Statistical Database.



Monthly electric energy statistics



- *Population:* About 1 600 enterprises (manufacturing, district heating plants and railways). Cut-off-sample for manufacturing.
- *Variables:* Electricity production, imports, exports, use of electricity and distribution losses. Use of electricity are divided into consumer sectors.
- *Publishing:* Special web-report, Swedish Statistical Database.

Quarterly fuel statistics

- *Population/sample:* Census of power plants and district heating plants. Cut-off sample of about 1 000 manufacturing enterprises.
- *Variables:* Consumption of fuels. Gross production of electric energy. Production and deliveries of district heating. Stock, supply, own consumption and deliveries of coal. Coke, fuel oils and liquefied petroleum gas. Supply, own consumption and deliveries of natural gas.
- *Publishing:* Statistical report and Swedish Statistical Databases



Annual electricity, gas and district heating statistics

- *Population/sample:* Census (about 700 enterprises, about 1 450 power plants and about 200 CHP and district heating plants)
- *Variables:*
- Power plants: Technical equipment, electricity production and fuel consumption (quantity and value).
- District heating plants: Production and turnover of district heating, consumption of electricity and fuels.
- Enterprises: Production and deliveries divided into consumption sectors and specifications of receipts, certain costs, salary, and employment
- *Publishing:* Statistical report



Energy statistics for buildings with premises

- *Population/sample:* A sample survey of 8 500 real estates from 92 000 real estates
- *Variables:* Heated space, type of heating, number of premises and real estates, and consumption of fuels
- *Frequency:* Annual
- *Publishing:* Statistical report



Energy statistics for one- or two-dwelling houses



- *Population/sample:* A sample of 6 700 real estates with one- or two-dwelling houses from a population of 1.6 million real estates.
- *Variables:* Heated space, type of heating, number of houses and use of energy
- *Frequency:* Annual
- *Publishing:* Statistical report

Energy statistics for multi-dwelling houses



- *Population/sample:* A sample of 7 000 real estates with multi-dwelling buildings from a population of 80 000 real estates
- *Variables:* Heated space, type of heating, number of dwellings and use of energy
- *Frequency:* Annual
- *Publishing:* Statistical report

Annual energy statistics of manufacturing



- *Population/sample:* About 8 000 establishments in manufacturing from a population of about 65 000 establishments
- *Variables:* Electricity consumption, consumption of fuels for transportation, consumption of fuels for other purposes
- *Frequency :* Annual
- *Publishing:* Statistical report

Prices and contracts on electricity and natural gas



- *Population:* Total survey of electricity and transmission-network enterprises.
- *Variables:* Prices on energy and prices on transmission, number of subscribers and customers. Contracts and renegotiations.
- *Frequency:* Monthly and quarterly
- *Publishing:* Statistical report and web-report

Energy balance sheets



- *Type:* A totally covered description of the flow of different energy carriers and total for all energy.
- *Variables:* Supply, transformation and final use of energy, divided into groups of energy carriers, expressed in both natural units and TJ (terajoule).
- *Frequency:* Quarterly and annual.
- *Publishing:* Statistical report

Prices on electricity and transmission of electricity



Energy balance sheet



Monthly oil statistics



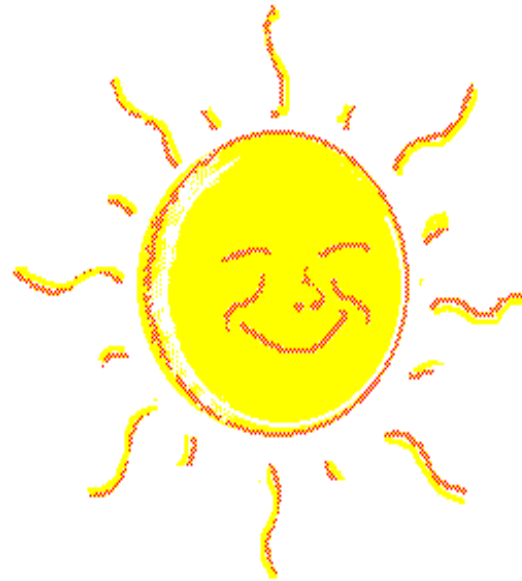
Annual energy statistics for manufacturing



Energy statistics for multi-dwelling houses



Energy statistics for one or two dwelling houses



Monthly electric energy statistics



Quarterly fuel statistics



Annual electricity statistics



Energy statistics for buildings with premises



Other Statistical products of Energy statistics in Sweden

Intermittent:

- Energy consumption in the construction sector
- Energy consumption in the fishery sector
- Energy use for domestic navigation
- Energy use in agriculture (sample 10 000 enterprises)
- Energy supply and use in week end cottages or summer houses (sample)

Datasources for international reports

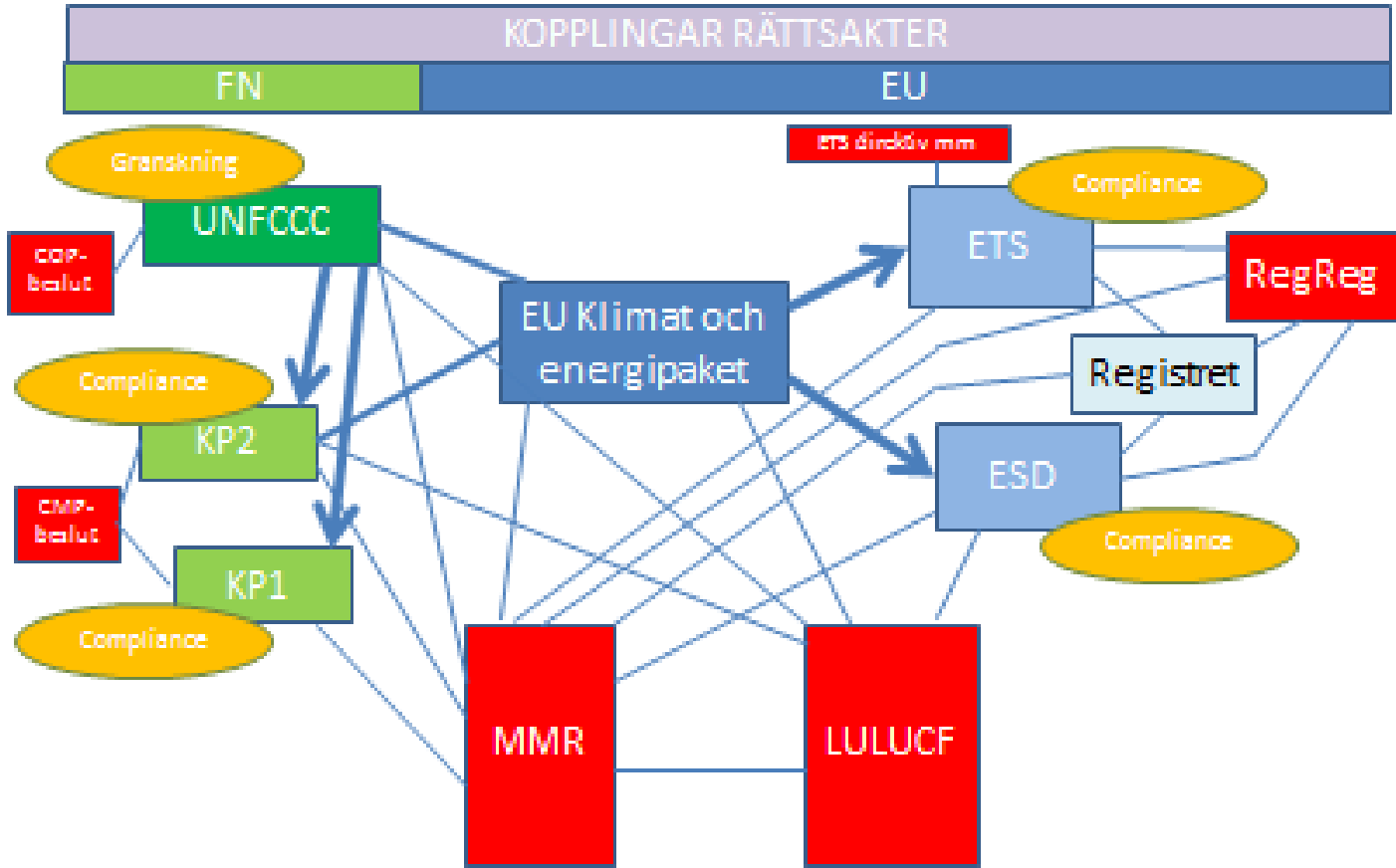
Report	Source	area	Producer	Legislation	Frequency
Annual Q Eurostat JODI	Annual statistics	Solid fuels and manufacturing gases	Stat Sweden	Dir 1099/2008 Appendix B	Annual
	Sustainability statistics	Naturgas	Swedish Energy Agency (SEA)	Same	Annual
	Annual statistics	Electricity and heat	Stat Sweden	As above	Annual
	Supply statics of oil	Oil and petroleum products	SEA	As Above	Annual
	Annual statistics	Renewable energy and waste	Stat Sweden	As above	Annual
Monthly Q MOS	Quarterly fuel, monthly fuel, gas and deliveries	Solid fuel	Stat Sweden	DIR 1099/2008 Appendix C	Monthly
	Monthly electricity	Electricity	Stat Sweden	Same	Same
	Monthly fuel, gas and deliveries supply statistics	Oil and petroleum products	SEA	SAME	SAME

Report	Source	area	Producer	Legislation	Frequency
Monthly Q MOS	Monthly fuel, gas and deliveries supply statistics	Nature gas	SEA	DIR 1099/2008 Appendix C	Monthly
	Same sources	Nature gas	Stat Sweden	DIR 1099/2008 Appendix D	Monthly
	Monthly electricity	Electricity	Stat Sweden	Same	Monthly
	Monthly fuel, gas and deliveries supply statistics	Oil and petroleum Products(JODI)	SEA	SAME	Monthly
	Modelling Quarterly fuel, monthly fuel trade	Monthly coal data questionnaire solid fuels, supply of hard Coal, lignite and peat	Stat Sweden	Same	Monthly
	Annual statistics	Renewables and waste, electricity and heat, MiniQ, år; IEA	Stat Sweden		Annual

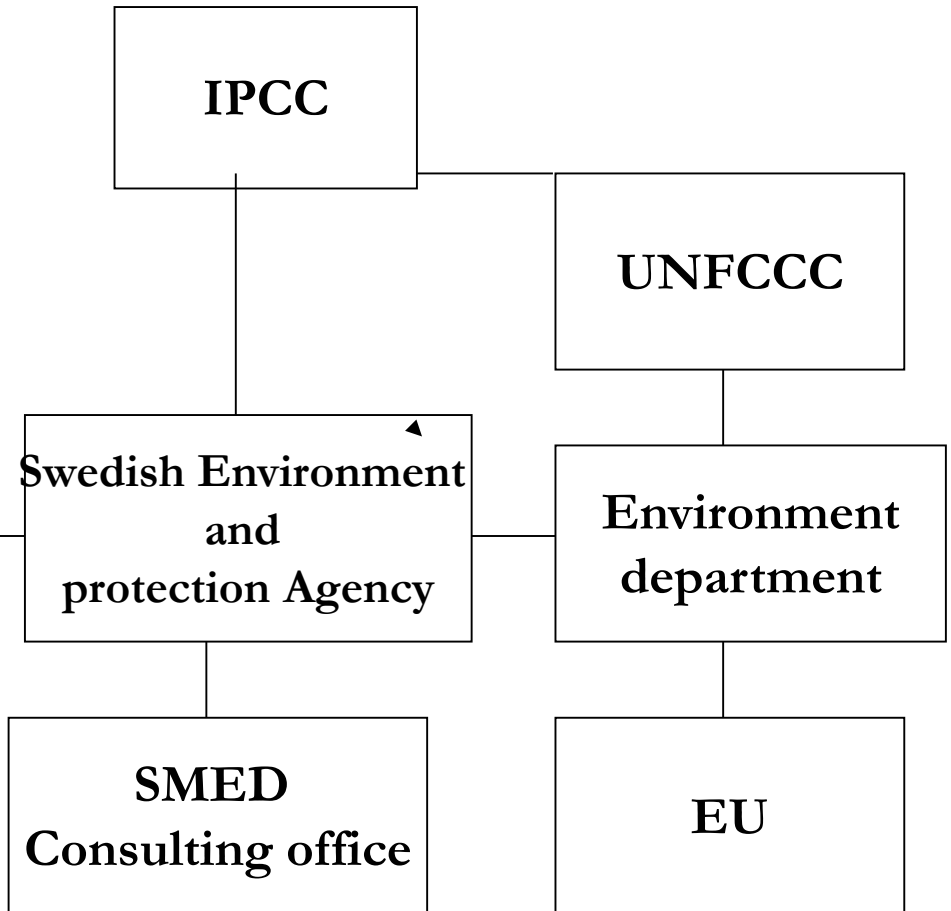
Report	Source	area	Producer	Legislation	Frequency
Questionnaire, solid fuels, supply of hard coal, lignite and peat; reported twice a year	Monthly fuel, gas and deliveries quarterly fuel	Solid fuels	Stat Sweden	405:2003	Half year
EurObserver survey: Biomass energy	Modelling Annual statistics	Biomass exclude biofuels	Stat Sweden		Annual
Questionnaire on indicators to monitor the progress of competition in the electricity market	EI, SCB and EM	Electricity	Stat Sweden		Annual
Electricity and gas process for households and industrial consumers	Survey of electricity and gas	Electricity and gas deliveries and prices	Stat sweden	40/377 EEC	Half year
Indicators of the natural gas market	Different sources survey, modelling	Natural gas	Stat Sweden, SEA and EI		Annual
Mini Q coal, pre IEA Eurostat	Different sources modelling	Coal	Stat Sweden	DIR 1099/2008 Appendix B	Annual

Report	Source	area	Producer	Legislation	Frequency
CHP statistics	Modelling	CHP	SEA	2004/8/EG 92/42 EEG	Annual
Petroleum. Electricity, Gas sectors	Different Modelling	Investment statistics	SEA	EG 736/96	Annual
Questionnaire for country submissions, IEA		SLT/CERT Annual review of energy policies	SEA		Annual
Import of hardcoal	Modelling different sources	Country by third part origin	SEA	405/2003	Half year
IRENA	Annual statistics, and other sources	Renewable	SEA and Stat Sweden		Annual
MESH	Modelling	Detail Energy consumption in household	SEA	DIR 1099/2008	Annual from year 2016

MMR and EU and UN laws and regulations on climate



National system organization - institutional arrangements



Ongoing Process pollution and climate work at SEA

Each delivery to NV with pollution and climate data/aggregates has been done independently of each other (probability of double accounting)

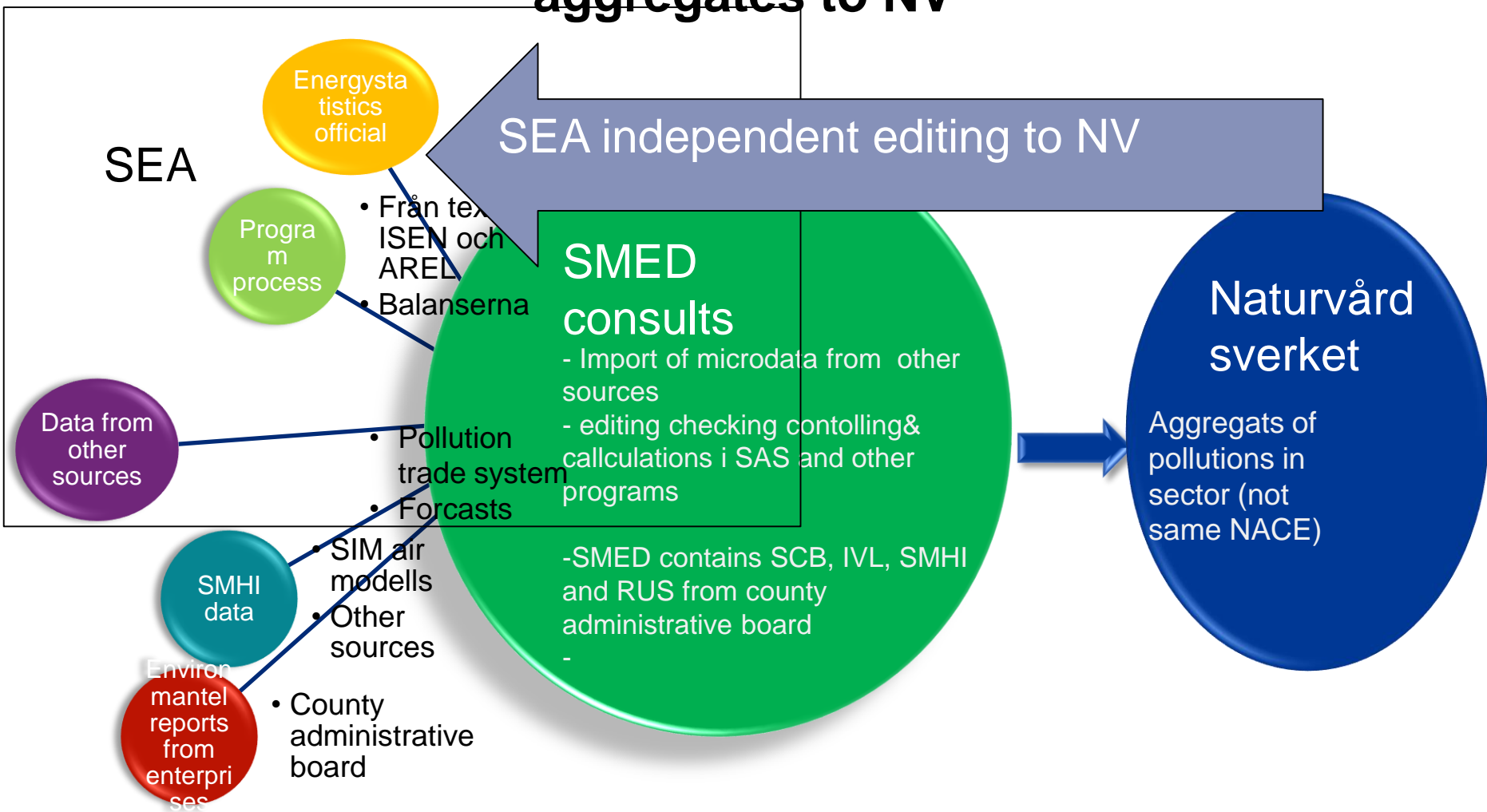
- SEA and NV are together responsible for the system of trade of pollution.
- SEA responsible for energy statistics
- SEA also responsible for forecasts of energy and deliveries result to NV of the forecasts.

SEA obliged to be independent editing in energy sector of all statistics to Swedish Environment and Protection Agency.

How is it possible? (What process and tools, methods and information should be used in that work?)

- It is necessary internal coordinator between all subjects of the demand NV gives us in their national regulation.

Future process of deliveries from SEA to SMED and aggregates to NV



Clear demands on national and international Energy statistics

- (Transparent) and explanations of differences exceeded over threshold values comparable reported delivered data to Eurostat.
- New sources of energy statistical data needed to (annualy energy balances m.fl.)
- New terms of collaboration interntal at SEA and extarnal with NV for all how works more or less with Swedish environment and protection agency. NV coordinates the climate and pollution system.

Problem with different systemlimit

Energy system one systemlimit (definitions)

With it is assumptions, classifications, divisions, objects, terms, terminology and so on.

Datacollections which SMED have based their assumptions and programs on is (SEAs energy statistics). Sources Quarterly fuel, special programs of manufacturing survey, Monthly oil and fuel stocks and delivery and Annual production of electricity, gas and district heating statistics)

Pollution trade system, Climate system other systemlimits (not the same)

(NV gets from SEA pollution trade enterprises, forecasts and so on)

**Thank you for your
attention**

e-mail:

niklas.notstrand@energimyndigheten.se