Problems regarding the collection, treatment and dissemination of energy statistics in Mexico: focus on the energy balance

Secretaría de Energía

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Gobierno Federal

SENER

Vivir Mejor

Objective

• Have **detailed, complete, timely and reliable energy statistics** on the different flows: form production to consumption of all energy sources.

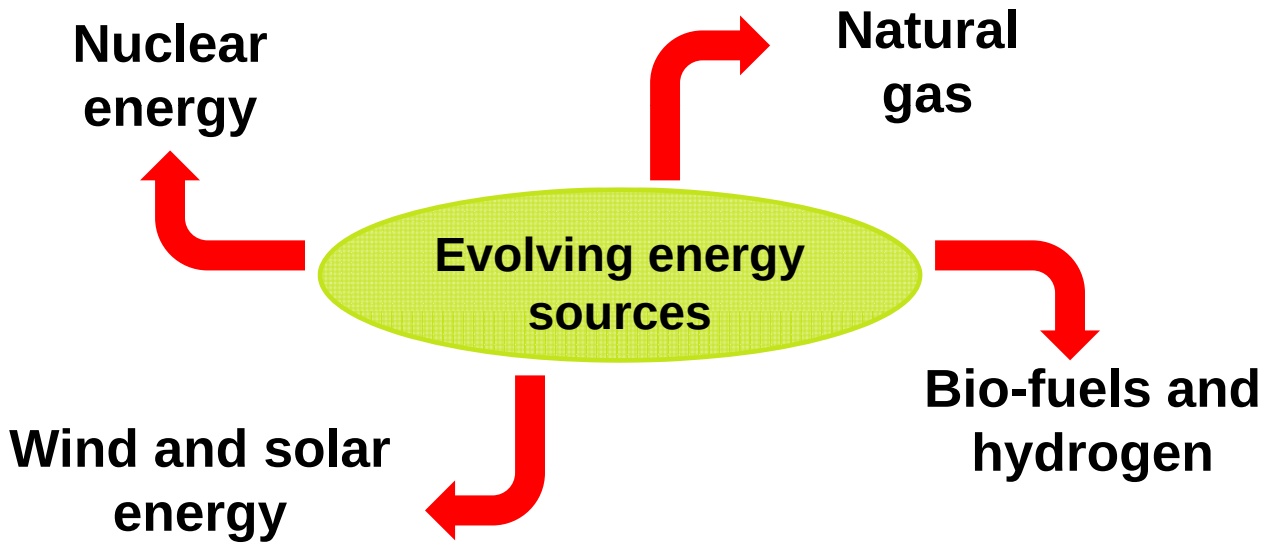
• This will allow planning offices to take the **appropriate decisions** regarding the energy sector.

Background

- Energy is a crucial element to the economic and social development of any country.
- In past years, there has been a **fast evolution** of the **energy markets**. Specially, regarding renewable energy such as wind and solar energy.
- More recently, there has been an expansion of the LNG and electricity markets.
- **Biofuels and hydrogen** will become more important in the future: we need to bee prepared.

Background

- As a result, it can be said that the energy sector is an **evolving market**:



- Structural changes might occur with more depth, and so we will be facing **new information requirements**.

Background

- Traditionally, energy production was centralized within a few national companies. Nowadays, there are **more energy producers, more distribution companies and a lot of consumers.**

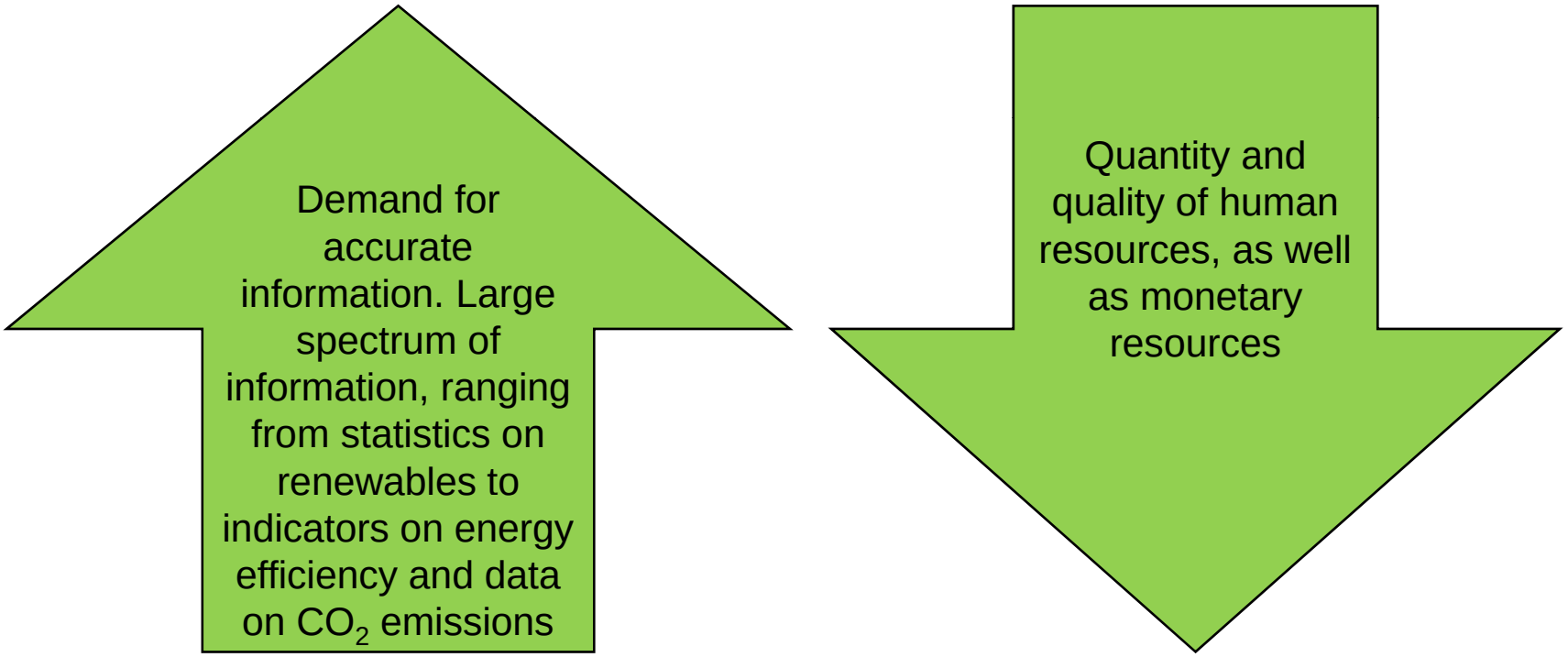
- The close link between energy and environment, constitutes a strong reason to have accurate information in order to **develop better energy efficiency policies**.

- Given the **environmental concerns**, CO_2 emissions should be calculated.

- As a consequence, there is an obvious need for better statistics to understand energy market, have good policies

General problems

- Shortage of experienced staff and **insufficient resources**:



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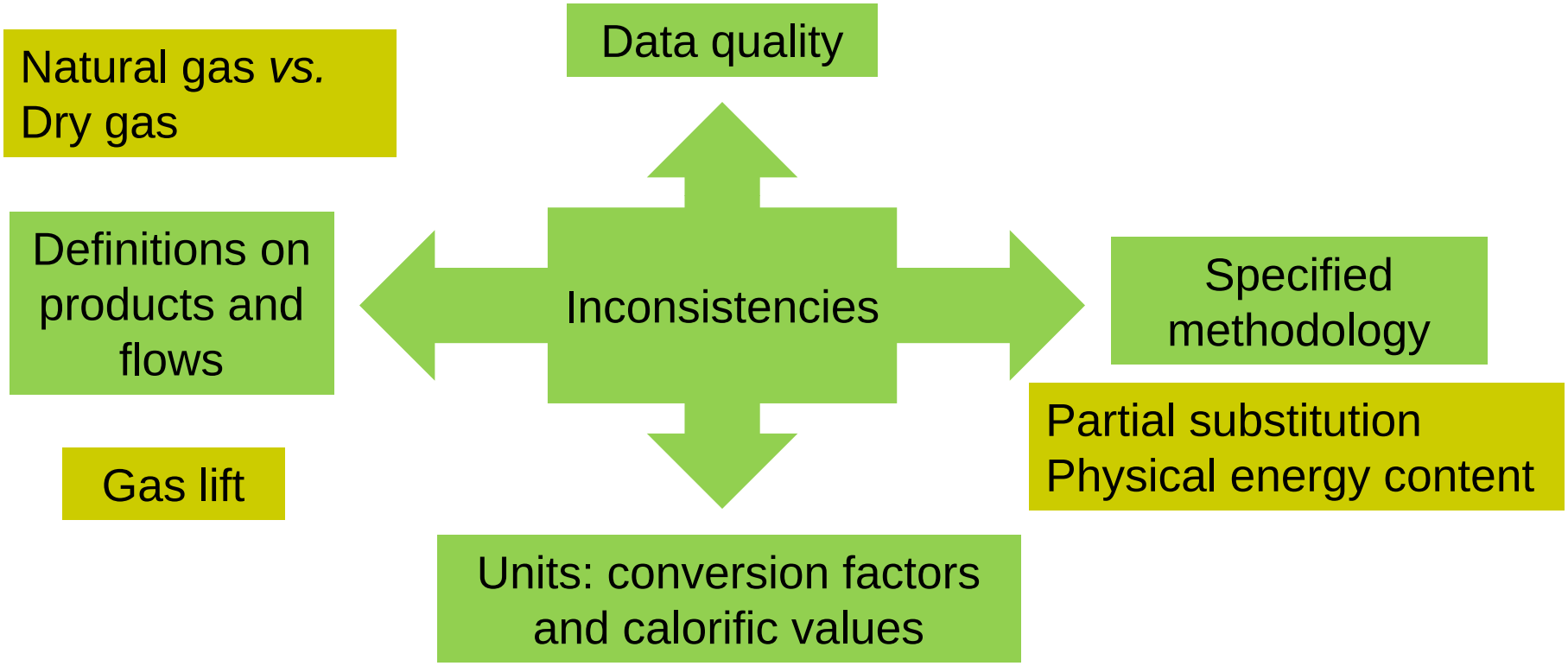
Low capacity to collect and process energy statistics: detailed, complete, timely and reliable data

Specific problems

Data collection:



Consequences: more estimates and more missing data, as well as longer delays. Therefore, there is a loss of information, quality and timeliness.

Specific problems

Balance nacional de energía 2007
(petajoules)

	Carbón y coque	Hidrocar-buros	Nuclear	Hidro, Geo, Eolica	Bagazo y leña	Petrolí-feros	Produc-tos no energé-ticos	Gas seco	Electri-cidad	Total
Producción	251.2	10,125.9	114.5	344.1	346.3	0.0	0.0	0.0	0.0	11,182.0
Importacion	151.7	0.0	0.0	0.0	0.0	1,014.6	0.0	391.3	1.0	1,558.6
Variación de inventarios										-53.9
Exportación										-4,221.5
No aprovechada										-225.2
Maquila-intercambio neto	0.0	-5.1	0.0	0.0	0.0	4.1	0.0	0.0	0.0	-1.0
Oferta interna bruta	**413.2**	**6,068.3**	**114.5**	**344.1**	**345.2**	**622.5**	**-2.7**	**338.1**	**-4.2**	**8,239.1**
Total transformación	**-318.7**	**-5,097.9**	**-114.5**	**-344.1**	**0.0**	**2,569.6**	**184.2**	**509.4**	**837.2**	**-1,774.7**
Coquizadoras	-4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-4.4
Refinerías y despuntadoras	0.0	-3,051.3	0.0	0.0	0.0	2,542.0	102.4	96.8	0.0	-310.0
Plantas de gas y fraccionadoras	0.0	-2,046.6	0.0	0.0	0.0	511.3	81.8	1,273.6	0.0	-179.9
Centr										-1,010.4
Centr										-269.8
Consumo propio del sector	-1.1	-198.2	0.0	0.0	0.0	-154.4	0.0	-394.6	-40.5	-788.8
Transferencias interproductos	0.0	-467.4	0.0	0.0	0.0	0.0	0.0	467.4	0.0	0.0
Recirculaciones	0.0	-265.8	0.0	0.0	0.0	0.0	0.0	-356.0	0.0	-621.8
Diferencia estadística	-0.8	-8.7	0.0	0.0	0.0	-45.1	-11.1	0.0	3.0	-62.6
Pérdidas (transp.,dist. y almac)	0.0	-30.3	0.0	0.0	0.0	0.0	0.0	0.0	-145.8	-176.1
Consumo final total	**92.7**	**0.0**	**0.0**	**0.0**	**345.2**	**2,992.6**	**170.5**	**564.4**	**649.7**	**4,815.1**
Consumo no energético	0.0	0.0	0.0	0.0	0.8	8.7	170.5	86.0	0.0	266.0
Consumo energético						2,983	0.0	478.5	649.7	4,549.1
Residencial, comercial y público								39.2	237.7	893.5
Transporte	0.0	0.0	0.0	0.0	0.0	2		0.6	3.9	2,157.8
Agropecuario	0.0	0.0	0.0	0.0	0.0			0.0	28.1	134.9
Industrial	92.7	0.0	0.0	0.0	97.7	354.0	0.0	438.6	380.0	1,362.9
Producción de energía secundaria:	**54.6**	**0.0**	**0.0**	**0.0**	**0.0**	**3,053.3**	**184.2**	**1,370.4**	**837.2**	**5,499.7**

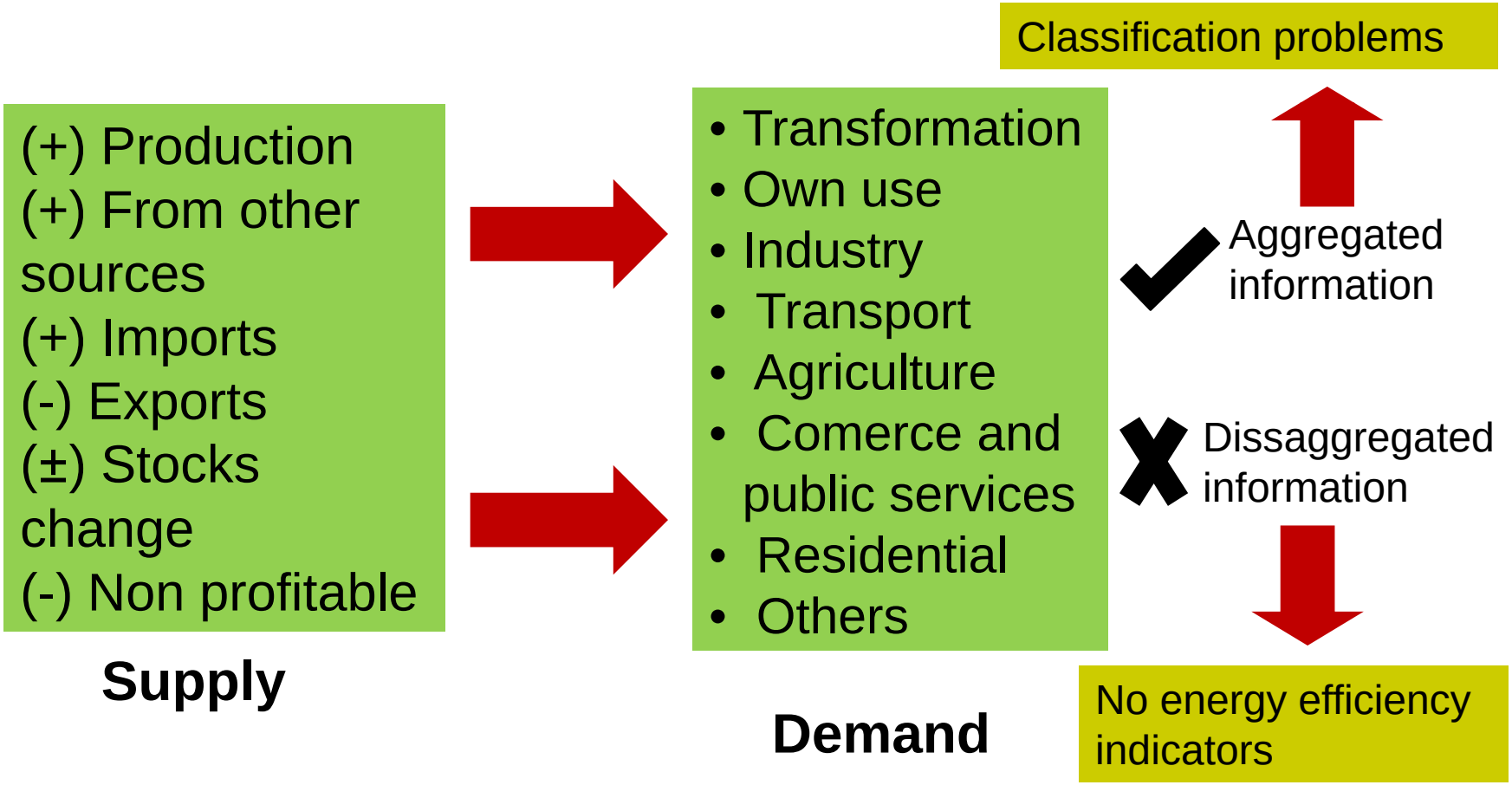
Enough aggregated data: Supply Side

Enough aggregated data: Transformation Sector

Lack of detailed data

Specific problems

- There is good information on supply.
- However, there is **not enough** information on the **demand**.



Specific problems

- **Delays** in information, in particular with the industrial consumption survey.
- **Missing** data.
- **Additional** data **requirements** without more financial and human resources.
- Market **interveners** are **increasing** in number.
- Market regulations lead to **confidentiality** issues.

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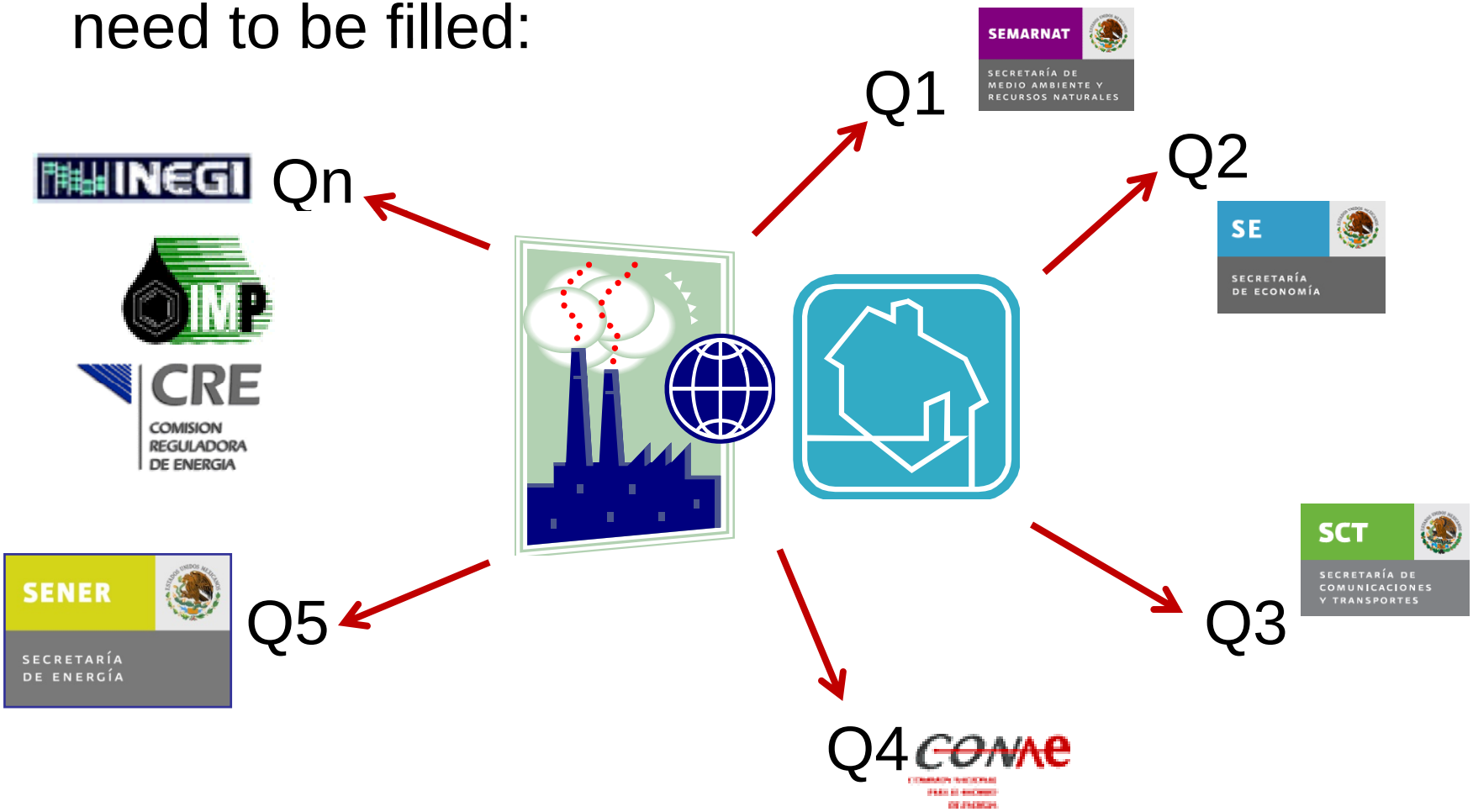
Specific problems

- **Many questionnaries** from different institutions need to be filled:



Specific problems

- **Data treatment:**
- Data should be checked and cross-referenced when there are **discrepancies**.
- **Estimates** of the missing data should **fill data gaps**.
- … however, these depend on the available resources.

Specific problems

- **Data dissemination:**

- Based on objectives, reporting obligations and **financial constraints**.

- It is important to add value to the raw data by means of:

• Comparisons	• Analysis
• Indicators	• Tables

- Dissemination can be done through:

• Internet	• Booklets	• Publications
• Books	• Papers	• CD-Roms

Budget constraints

Energy Balance Process

Public Energy operators

PEMEX

CFE Comisión Federal de Electricidad

LyF

Transport Sector

Metrorrey

SCT Secretaría de Comunicaciones y Transportes

Partial Substitution

- Hydro
- Geothermal
- Wind

IBERDROLA

EDF

UNION FENOSA

AES

MITSUI & CO., LTD.

gasNatural México

Independent Electricity Producers

- **736 Autoproducers**
- **103 Natural gas transport and distribution companies**

Data revision

olade Organización Latinoamericana de Energía

SENER Secretaría de Energía

CRE Comisión Reguladora de Energía

IMP

Final consumption

INEGI

Coal statistics
Trade statistics

Industrial consumption survey
Sample: 200 industrial units
Census 2004: 481,084 manufacture units

Actual challenges

There is an increasing need to obtain:

- Statistics on **renewables**.
- Indicators of **energy efficiency** and **energy security**.
- Information on **new products: biofuels, industrial waste**.
- Data on greenhouse gases **emissions**.
- More dissaggregated data by region: in some cases by municipality.
- Better quality data: **but how to measure?**

Actual challenges

- Higher coverage.
- **Timely** data.
- Precise information on supply and demand of biofuels and biomass.
- Detailed data to produce energy **efficiency indicators**.
- Detailed data on **specific end-uses**.

General solutions

• Policy makers need to invest in **good quality statistics**: a worst decision is very expensive.

• **Better communication** between energy policy makers and statisticians. Policy makers should be **aware** of the different **constraints** and **problems**.

• **Improve** the knowledge, experience and expertise of **statisticians**: statisticians should receive frequent training, as well as appropriate guidelines and support.

General solutions

• Reference documents, as well as manuals should be update: **UN is doing this task and IEA has already one.**

• Given the lack of resources, there should be a **balance** between **workload** and **resources**.

• **Statistical legal frameworks** should be **improved** and adapted.

• **Closer cooperation** between the different participants of the energy sector is crucial.

General Solutions

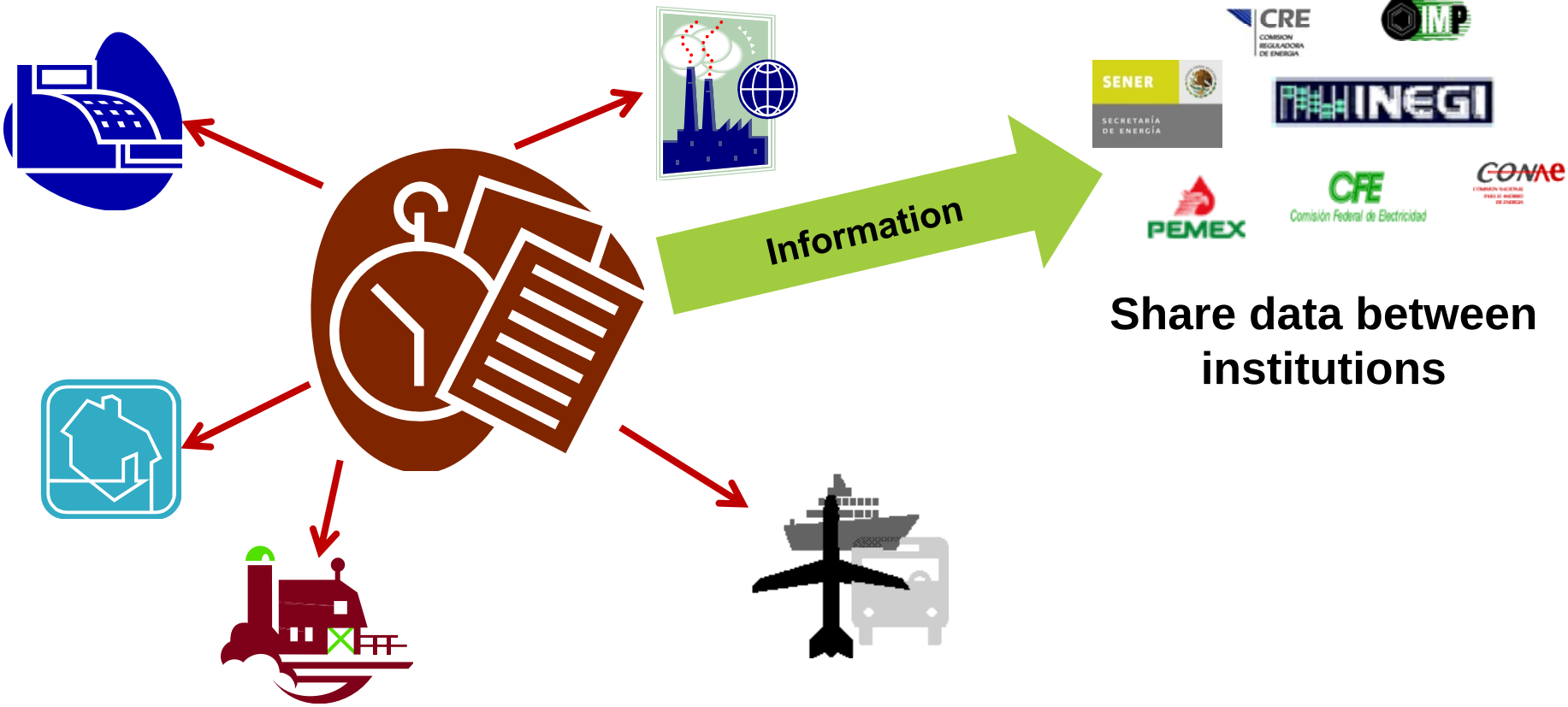
- What can be done?

- Census
- Surveys and questionnaires
- Administrative records

- **Only one questionnaire**
- **Better coordination between statistics offices**
- **Improve harmonization**

General Solutions

- **One big survey** or **questionnaire** for each type of final consumer, in order to avoid duplication of efforts:



Share data between institutions

General Solutions

Cooperation is needed, both in the collection and sharing of information

General solutions

- **Harmonization** efforts between the different institutions and participants will be required in order to achieve:
  - **Comparable** data.
  - **Common quality**, coverage and timeliness in data.

- **Homologate** concepts and products between and among institutions, in order to have comparable statistics: **the example of coal statistics.**

Thank you!

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Jorge Nuño
Deputy Director for Energy
Information and Studies
jnuno@energia.gob.mx
+ (52) 55 5000.6000 ext. 2477