



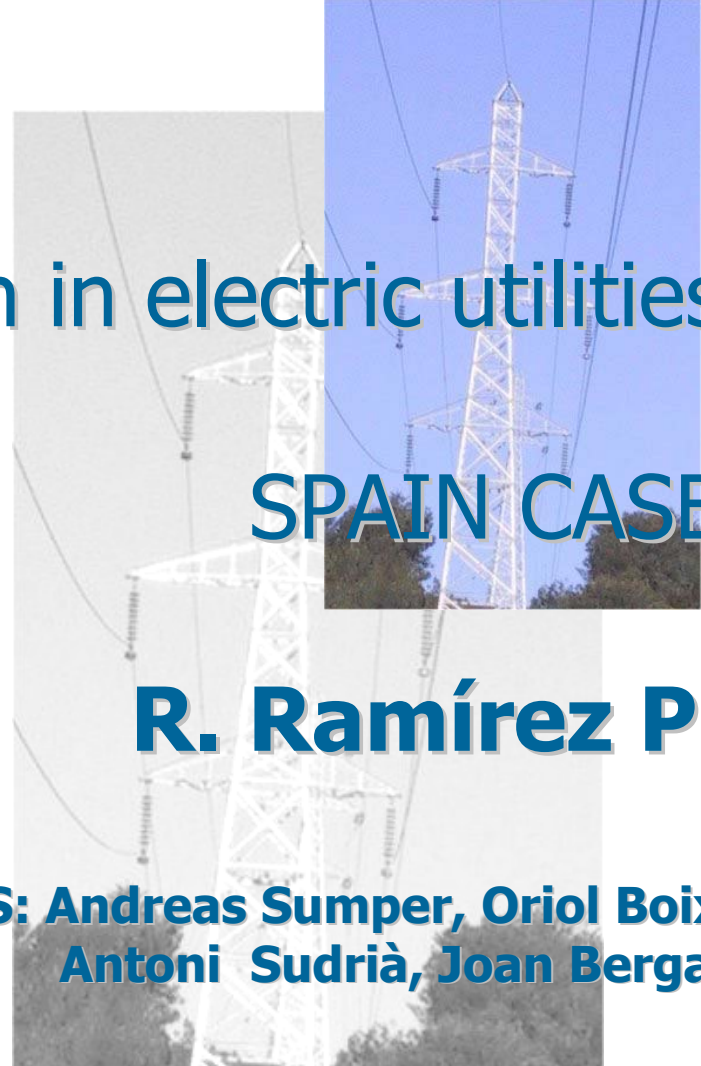
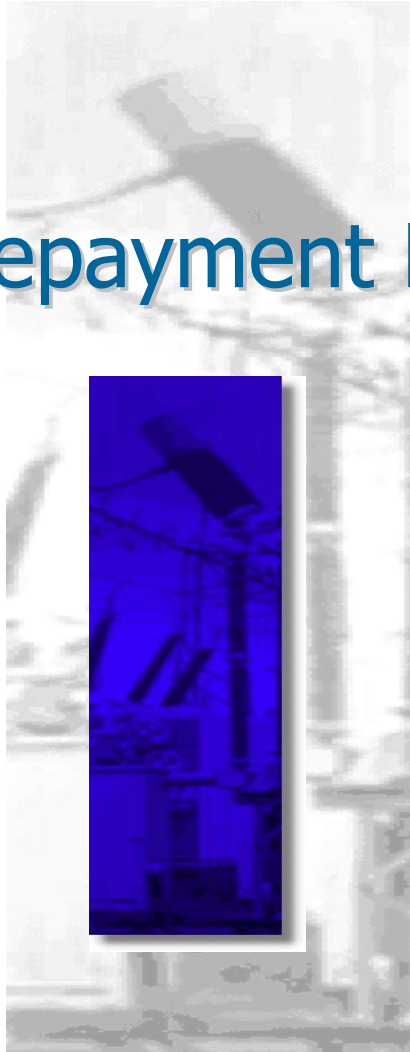
Distribution Repayment

Repayment Regulation in electric utilities

SPAIN CASE

R. Ramírez P.

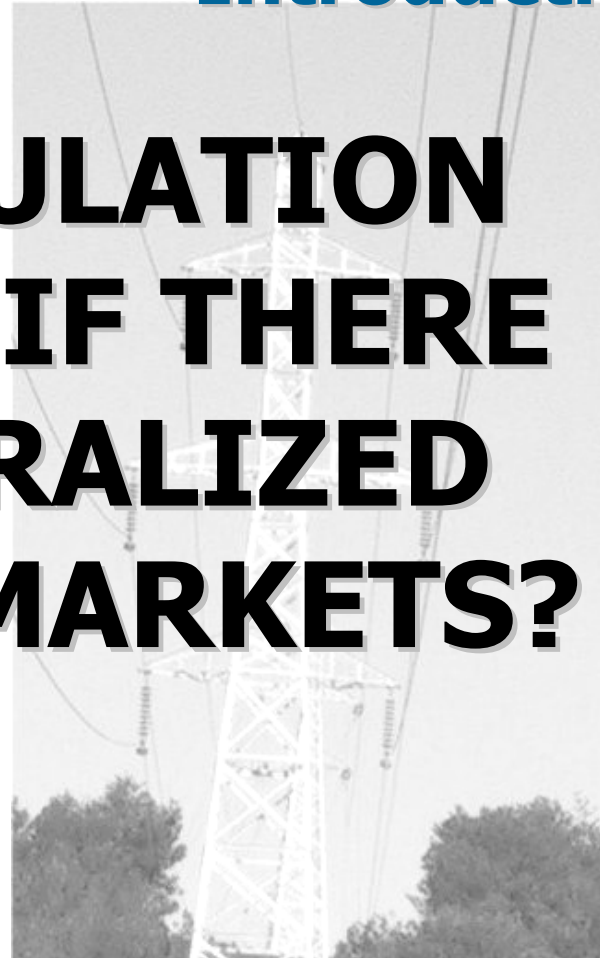
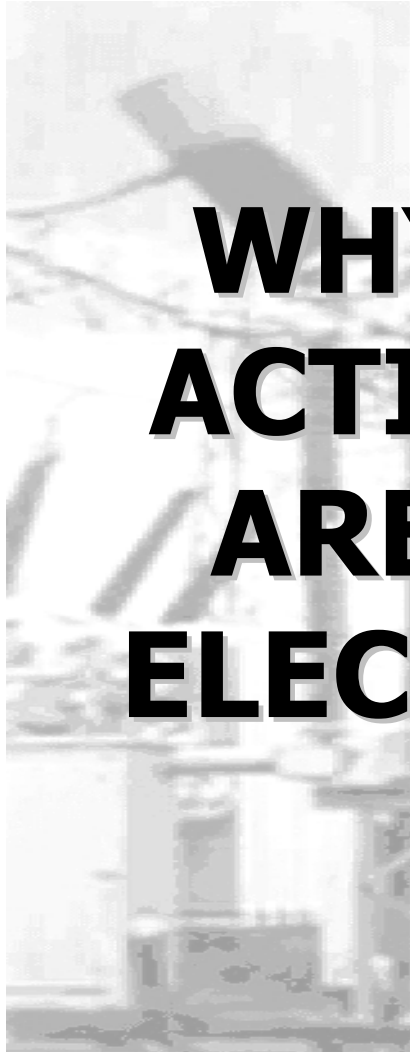
**CO-AUTHORS: Andreas Sumper, Oriol Boix,
Antoni Sudrià, Joan Bergas**





Introduction

**WHY REGULATION
ACTIVITY, IF THERE
ARE LIBERALIZED
ELECTRIC MARKETS?**



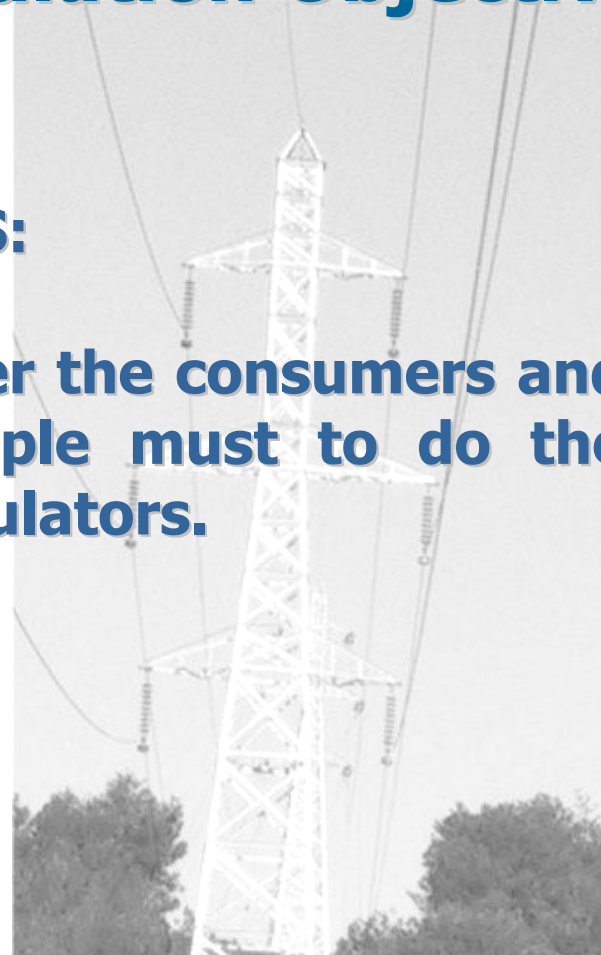
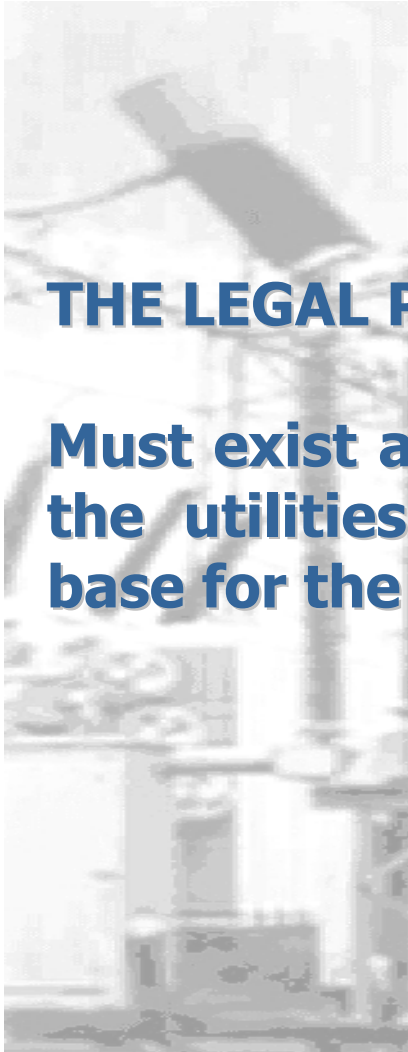


Distribution Repayment

Regulation Objective

THE LEGAL PRINCIPLE IS:

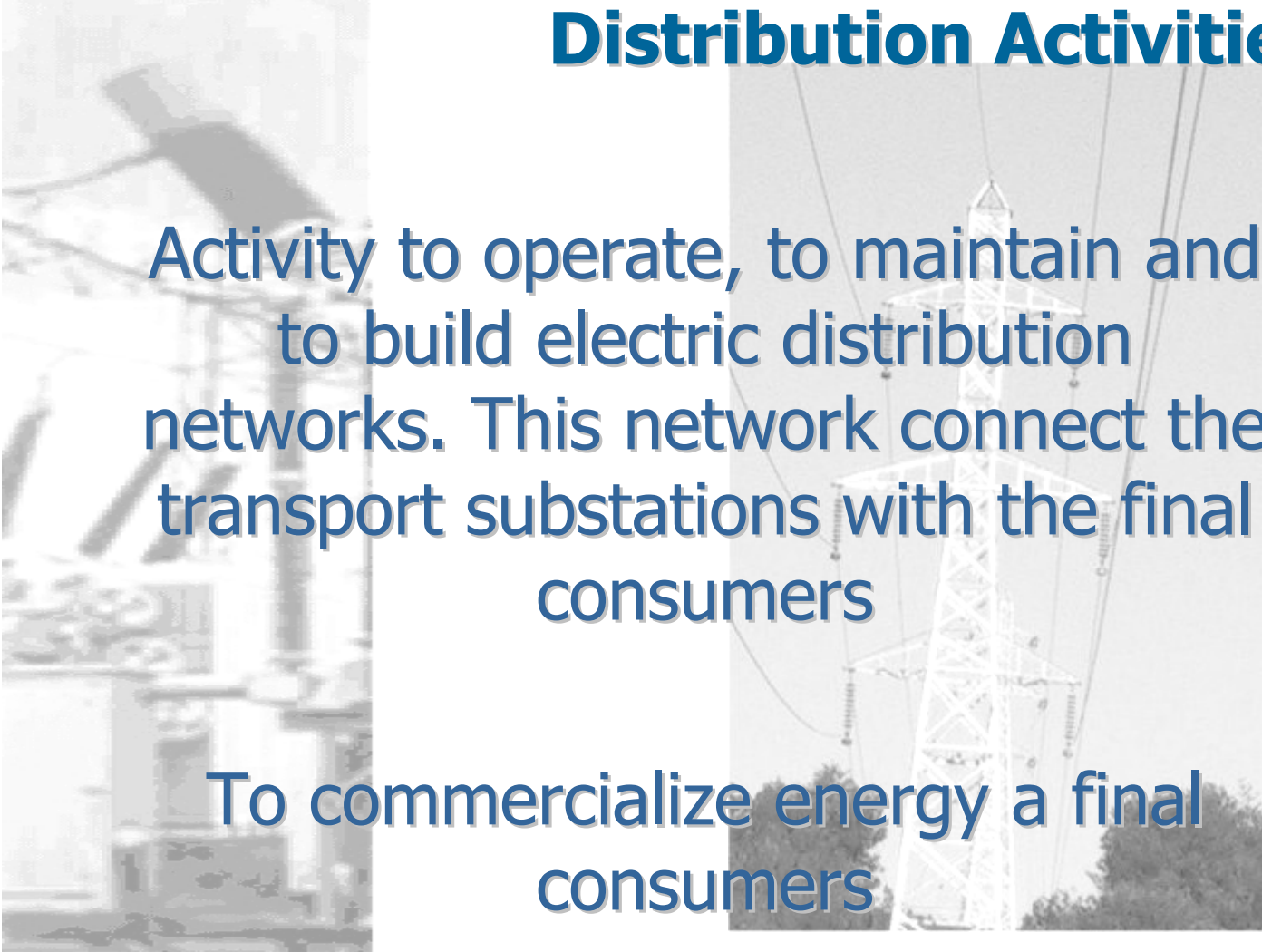
Must exist a balance inter the consumers and the utilities. This principle must to do the base for the decision regulators.





Distribution Repayment

Distribution Activities



Activity to operate, to maintain and to build electric distribution networks. This network connect the transport substations with the final consumers

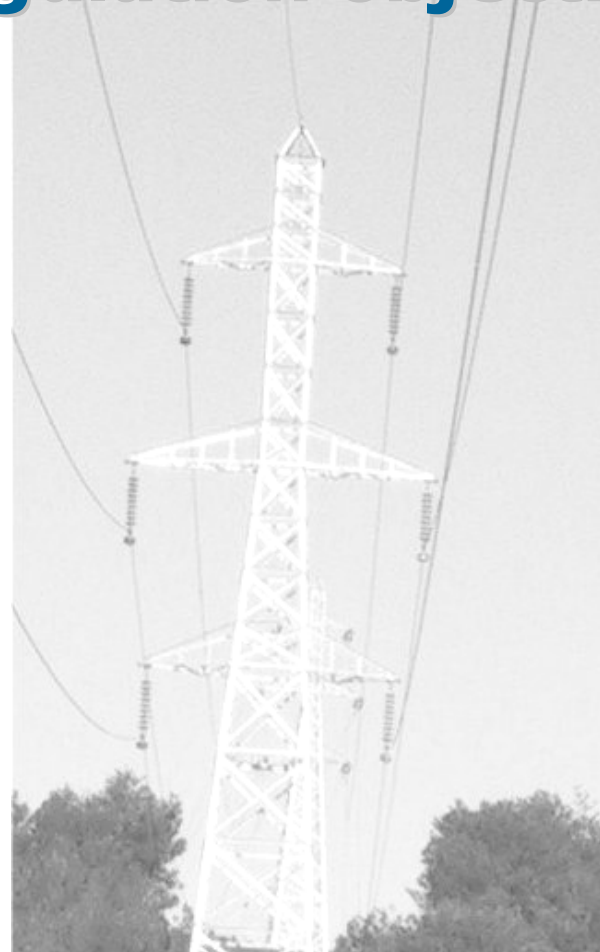
To commercialize energy a final consumers



Distribution Repayment

Distribution Regulation objective

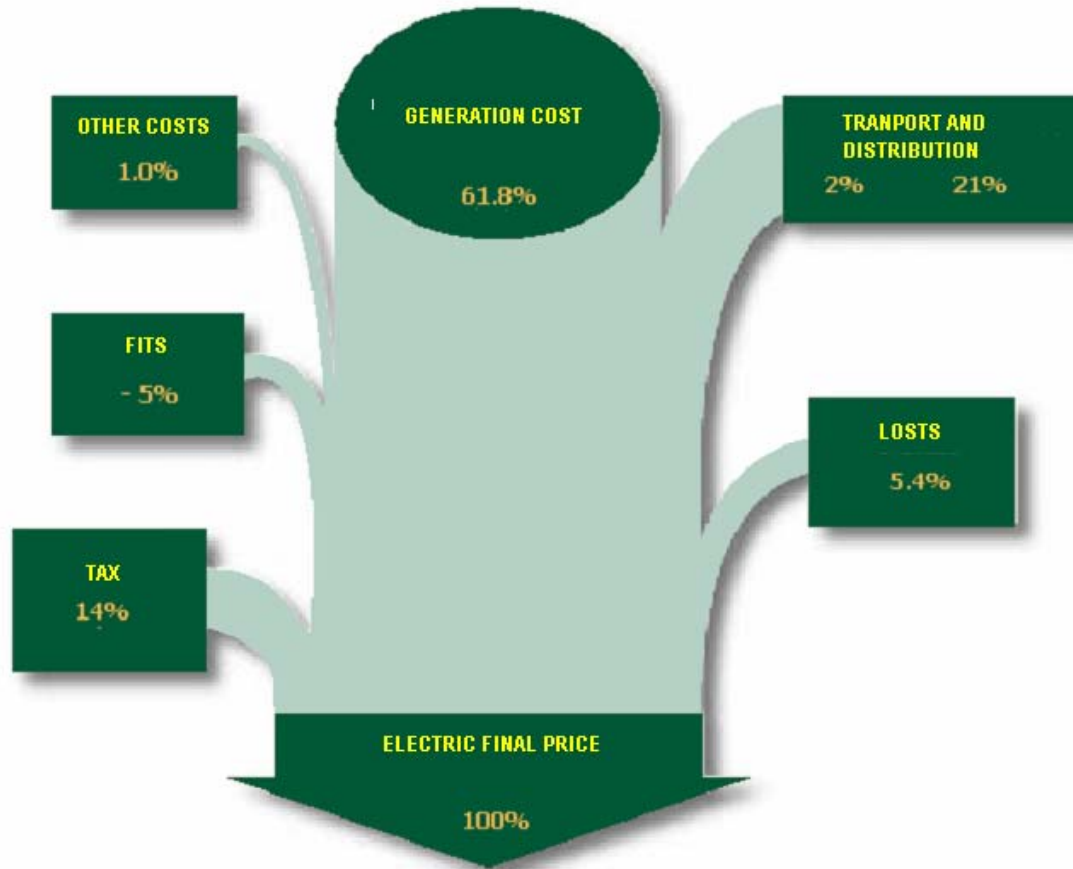
- To access
- Investments
- Prices





Distribution Repayment

Electric Energy Price



Fuente: Expediente de Tarifas y CSEN.



Distribution Repayment

Distribution Repayment Models

- Service cost.
- RPI – X
- Yardstick Competition
- Efficiency Standard Regulation

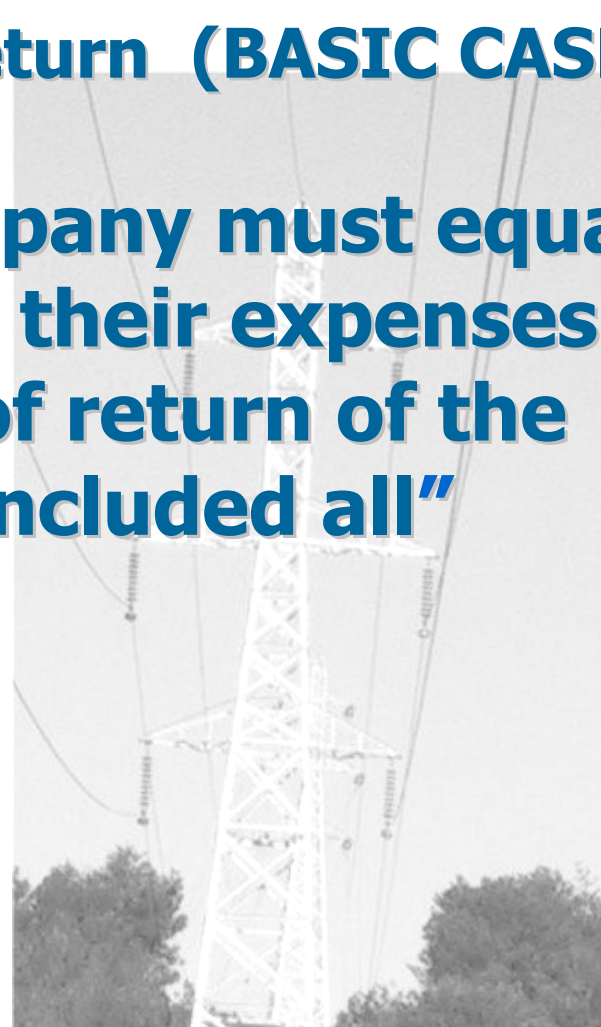




Distribution Repayment

Rate of Return (BASIC CASE)

“The rents of the company must equal their costs, in which their expenses plus “a right “rate of return of the investment are included all”

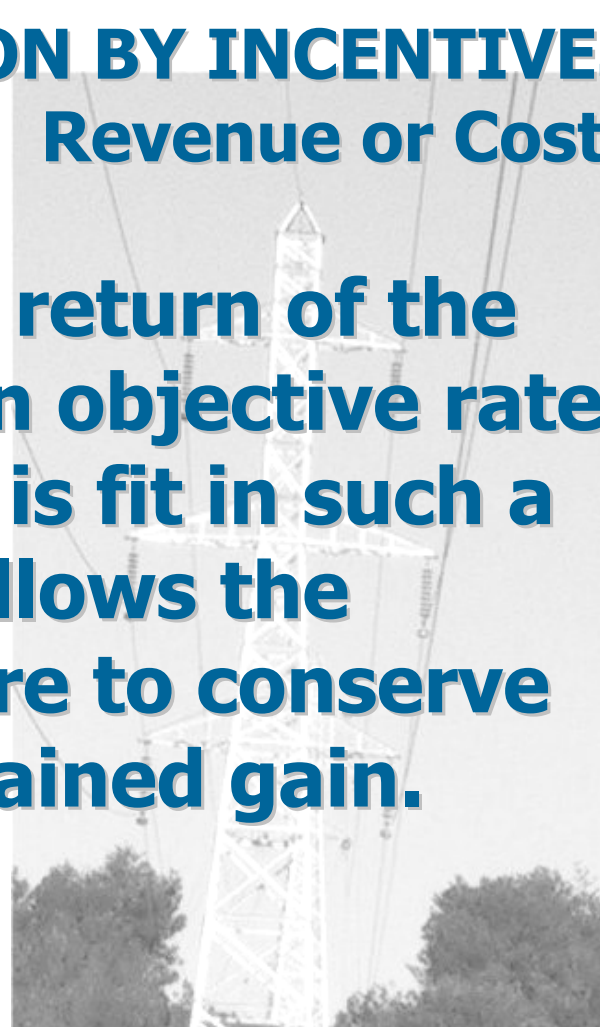
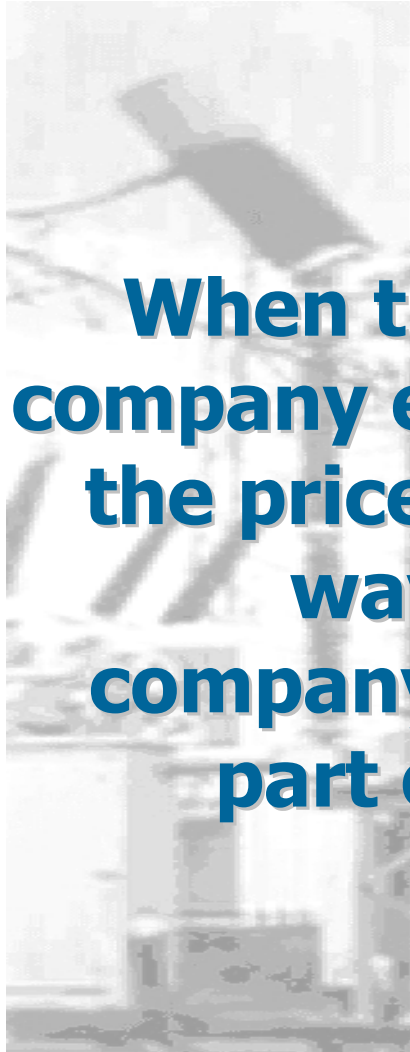




Distribution Repayment

REGULATION BY INCENTIVES Revenue or Costs

When the rate of return of the company exceeds an objective rate, the price partially is fit in such a way that it allows the company/signature to conserve part of the obtained gain.

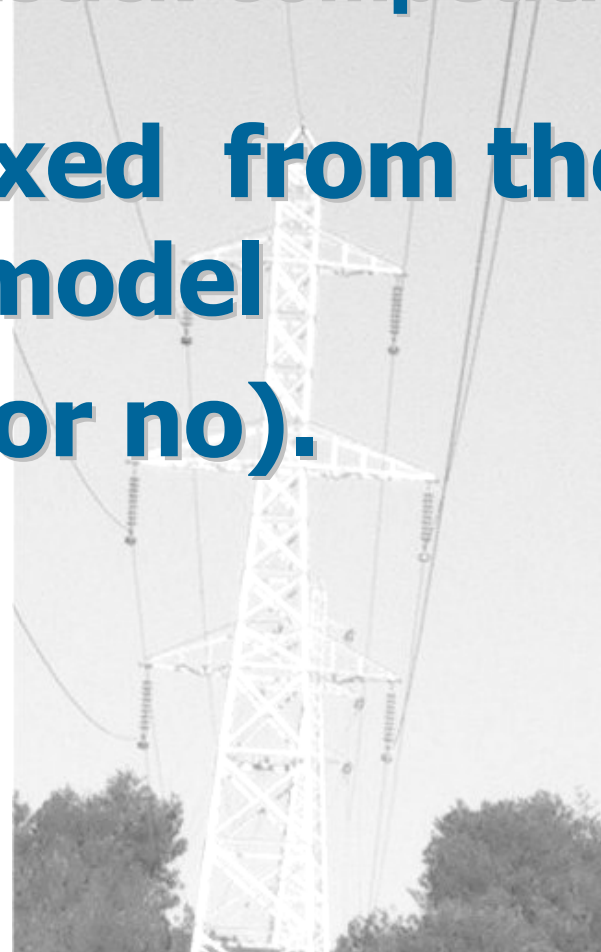




Distribution Repayment

Yardstick Competition

**The tariffs are fixed from the
utility model
(existing or no).**

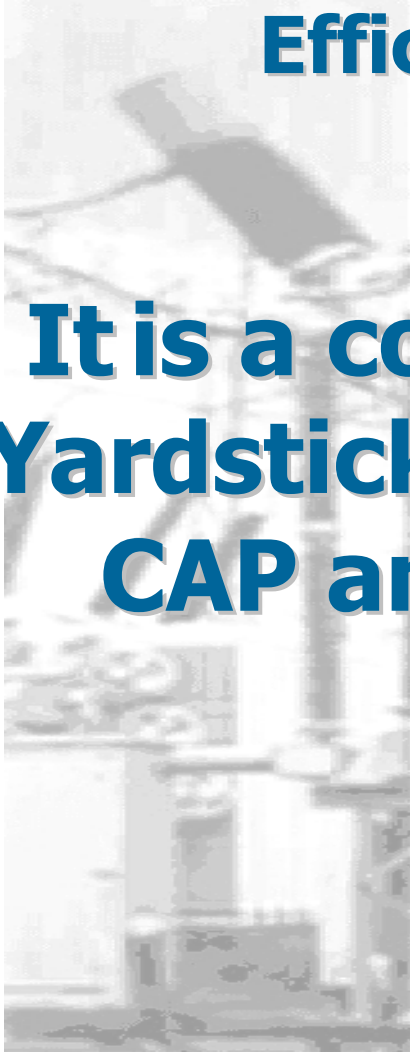




Distribution Repayment

Efficiency Standard Regulation

**It is a combination of the of
Yardstick Competition, Price-
CAP and countable costs
schemes.**





Distribution Repayment

SPAIN

$$DR_{i,t} = DR_{i,t-1} * [1 + (IPC_t - 1) / 100] * [1 + (\Delta D_{i,t} * FE)]$$

$DR_{i,t-1}$: Remuneration received for the utility i the last year

IPC_t : inflation in the actual year t, en percentage

$\Delta D_{i,t}$: Demand growth in the t year (utility)

Fe : Efficiency factor relate the growth of distributed energy whit the caused cost.



Distribution Repayment

Spain Repayment characteristics

- Distribution of stock-market between utilities. The “stock=market” is fixed for the Industry Minister.
- Updateable Participation from a reference network model.





Distribution Repayment

Spain. Actual situation

It is not contemplated to the improvement of the Quality on watch nor the reduction of losses.

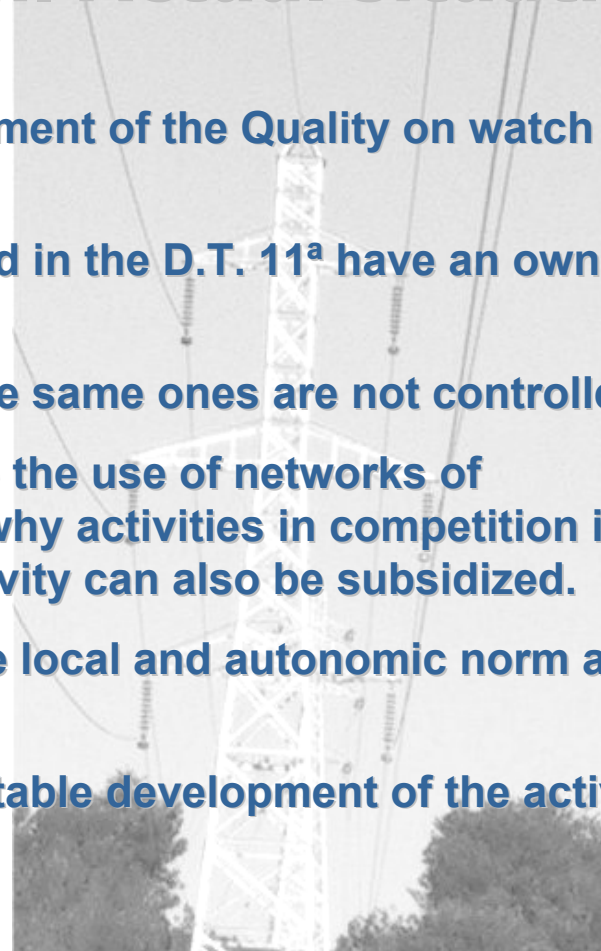
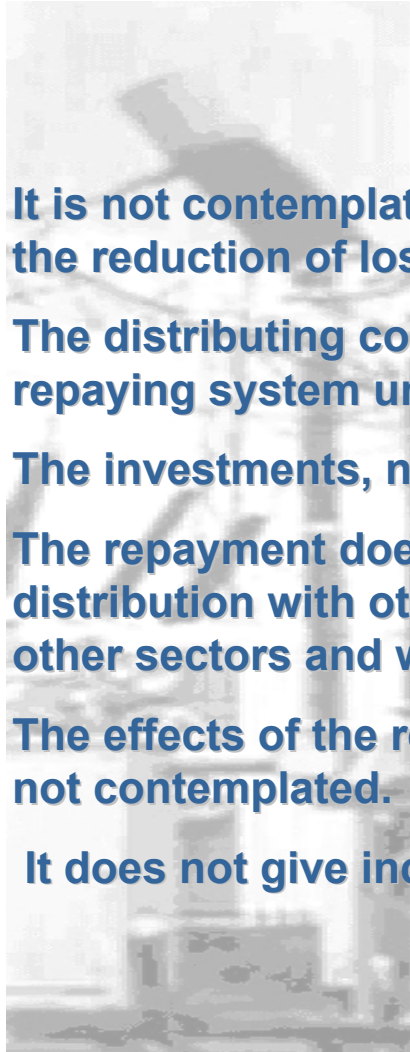
The distributing companies welcomed in the D.T. 11^a have an own repaying system until year 2007.

The investments, nor the nature of the same ones are not controlled.

The repayment does not contemplate the use of networks of distribution with other aims, reason why activities in competition in other sectors and within the own activity can also be subsidized.

The effects of the requirements of the local and autonomic norm are not contemplated.

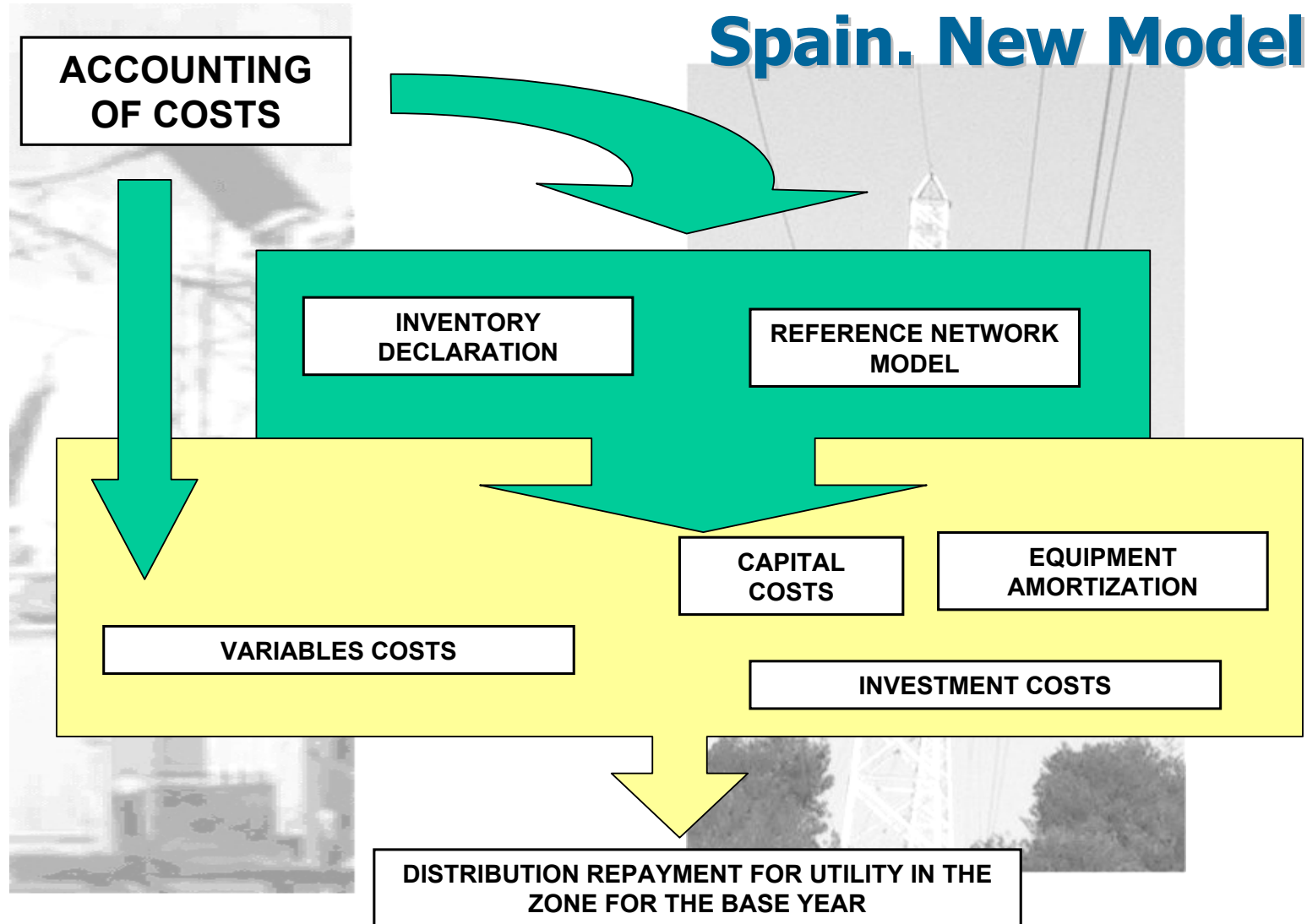
It does not give incentives to the suitable development of the activity.





Distribution Repayment

Spain. New Model

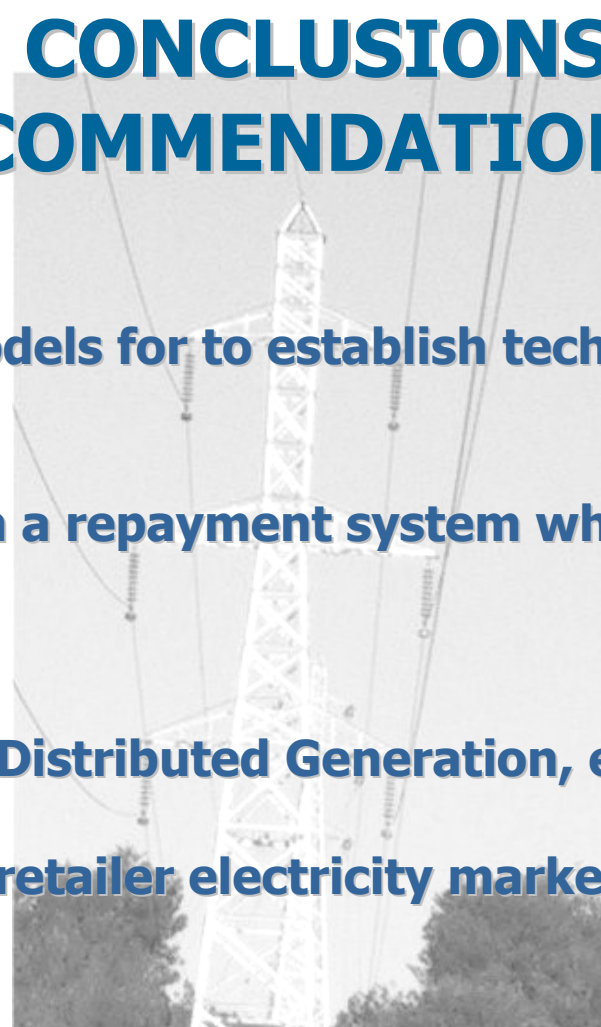
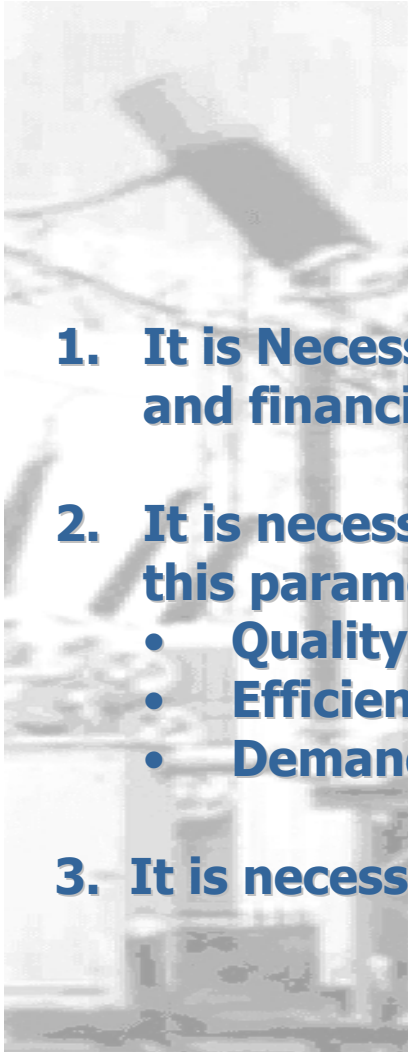




Distribution Repayment

CONCLUSIONS & RECOMMENDATIONS

- 1. It is Necessary to have models for to establish technical and financial impacts**
- 2. It is necessary to establish a repayment system whit this parameters:**
 - **Quality**
 - **Efficiency**
 - **Demand Side Bidding, Distributed Generation, etc.**
- 3. It is necessary to design a retailer electricity market.**





Distribution Repayment

1. OBJECTIVES of CITCEA in Electric Distribution

To analyze mechanisms that allow to the evaluation of regulatory measures in utilities. (Power quality, distributed generation. DSB).

To study mechanisms of repayment through efficient incentives in utilities



Distribution Repayment

Future Development: Interest Areas.

1. **Integral Regulation analysis tools**
2. **Valuation of constructive units**
3. **Development of Models that allow to measure the regulation effects.**
 1. **VAD valuation**
 2. **Data Envelopment Analysis**
 3. **PRICE CAP**
 4. **YARDSTICK**
4. **Study of Requirements for to do a Retail Market of Electrical Energy**





Distribution Repayment

2. Experiences. News Projects

Methodology for the use of Data Envelopment Analysis - DEA, to compare the quality in distribution companies

Efficiency Studio of Spain provinces

Software Development for VAD evaluation

In Construction
In Construction



Distribution Repayment



GRÀCIES PER LA SEVA ATENCIÓ
GRACIAS POR SU ATENCIÓN
THANK YOU FOR YOUR ATTENTION