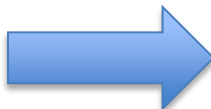
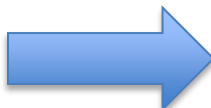
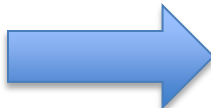
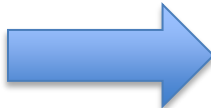
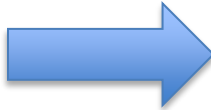


# Enabling conditions for sustainability: Lessons from Brazil

The communities want .....

- No more fires and accidents
- No more burns of equipments
- Information
- Be part of the decisions
- Orientation for the families
- Special commercial conditions
- Low price for the electricity
- AES Eletropaulo as a partner of the community



The AES Eletropaulo did.....

New standard for the electrical network

Negotiation and communication process  
Partnerships

Community campaigns and door by door orientation

**Special commercial policies, social tariff and energy efficiency program**

Social responsibility projects and new business opportunity

# Illegal Connections Regularization Program

## ❑ Program Strategies

- ❖ To develop relationship with the people and community leadership
  - Definition of the interlocutors for meetings and contacts with the communities
  - Definition of the only interlocutor for the media interviews
  - Definition of the verbal speech and material form of support for communication with the communities
  - Definition of the project label to be used in the written material, worker's uniform and all form of communication with the communities.
  - Survey of the local leaderships of the communities, politicians that act in the communities and NGO's that work in the region and public sector to negotiate the form of execution of the project and the communication procedures that will be used.



# Illegal Connections Regularization Program

## ❖ Establishment of the commercial policies

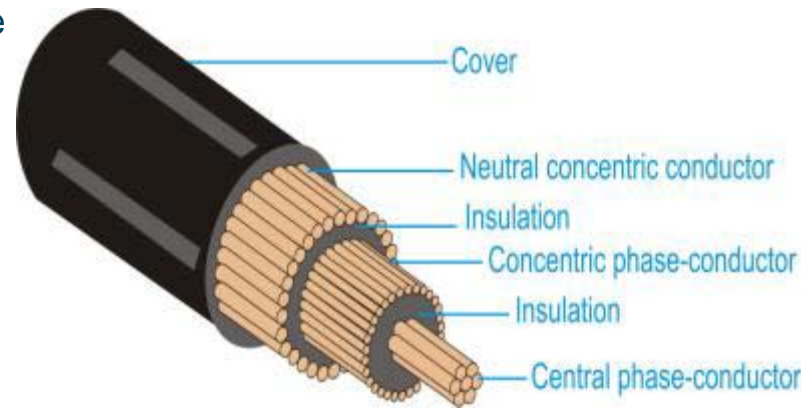
- Transition period - limitation of the consumption to be charged during at least the first 6 months after the connections in 150 kWh ( around US\$ 17,00 )
- Door-by-door visits to educate the people about how to use the energy efficiently and safer and give special orientation for the higher consumptions
- Installation of commercial office inside the big slum areas with library and free internet site to be used by the clients without bad debt and use of mobile attendance in the other areas.
- Low income tariff and special condition to negotiate late payments to avoid to stock bad debts.
- Communitarian agents to educate the people e negotiate bad debt after the regularization of the connections
- Donation trough the efficiency energetic program of the costumer box metering



# Illegal Connections Regularization Program

## ❖ Establishment of the network standard

- Spacer cable on the primary network in the areas where the house constructions are close of our network
- Twisted cable on the secondary network
- Bi-coaxial cable drop cable to connect the consumers
- Remote metering and cutting in critical areas
- External meeting for the places with high level of frauds



# Energy Efficiency Projects

## ➤ Replacement of incandescent lamps for compact fluorescent lamps

### ▪ Saving of 17 kWh / month / lamp

- Power average of the incandescent lamps: 70 W
- Power average of the CFL lamps: 23 W
- Time average of the lamps: 12 hours / day
- More than 1,2 million of lamps replaced

## ➤ Replacement of old refrigerators

- New refrigerators use ecologic friendly cooling gas and all the metallic materials are recycled and the CFC or HCFC gas are incinerated

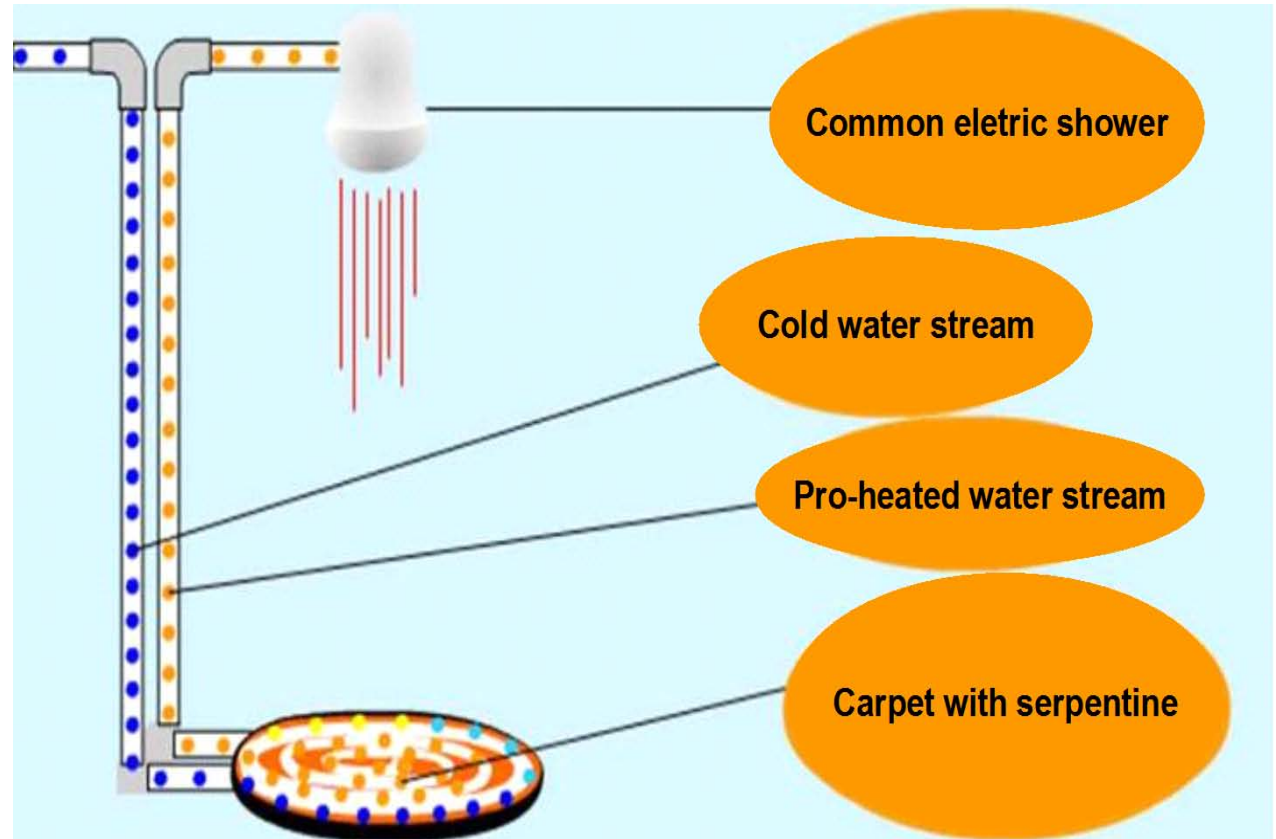
### ➤ Saving of 46 kWh / month in average

- More than 36.000 of refrigerators replaced



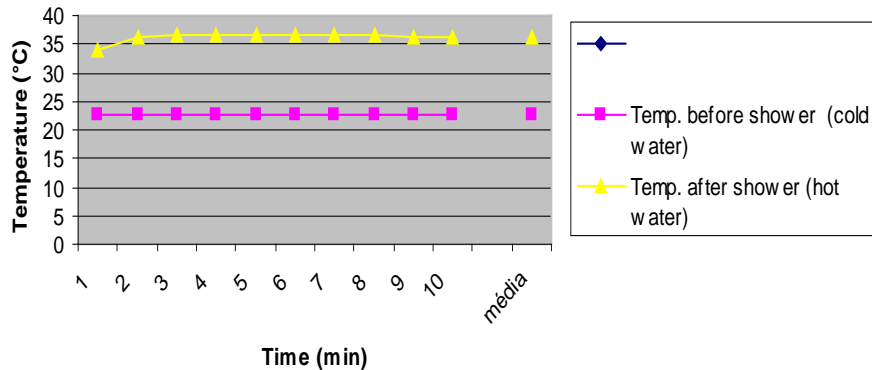
## ➤ Pre-heating system for electric shower

- Saving of 60 kWh / month on average with pre-heating system and economic shower
- Saving of 35 kWh / month with only the pre-heating system and conventional shower
- More than 14.000 pre-heating system installed

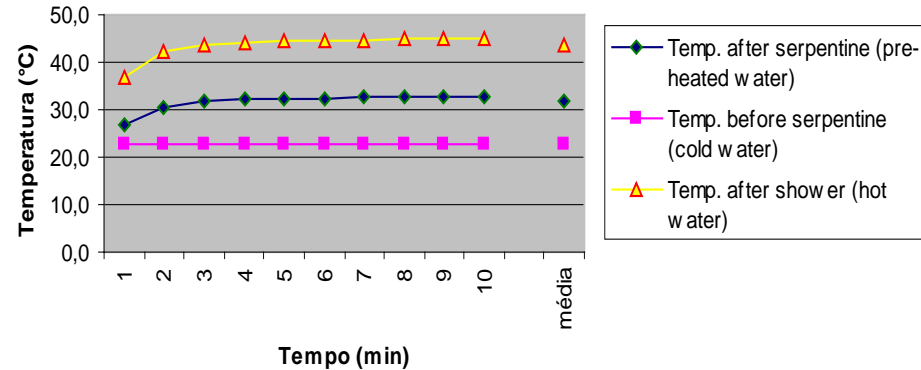


## ➤ Pre-heating system for electric shower – M&V

Conventional electric shower



Electric shower with time control



- ✓ We need 234 W to heat 1 Celsius degree in the conventional electric shower and 152 W with pre-heating system(35% less)
- ✓ The time limitation in 10 min reduces 15% of the consumption and the pre-heating system with economic shower reduce around 50% the level of consumption. It means we can reduce 36% of the electric shower power .



## ➤ Rewiring of the internal installation

- Improved safety
- Improvement power quality
- Saving of 16 kWh / month/ house
- More de 3.100 installations rewired



## ➤ Replacement of electric shower for solar heating device

- Saving on average 46 kWh / month / house
- Use of the solar heating 65% of the time
- Installation of consumption management system to monitor time used while taking a shower (green energy)



**Before:** 200 – 300 kWh/month, Bill: U\$ 58 (RT) US\$ 45 ( LIT )



Electric shower: Less 50 kWh/month

Lighting: Less 51 kWh/month

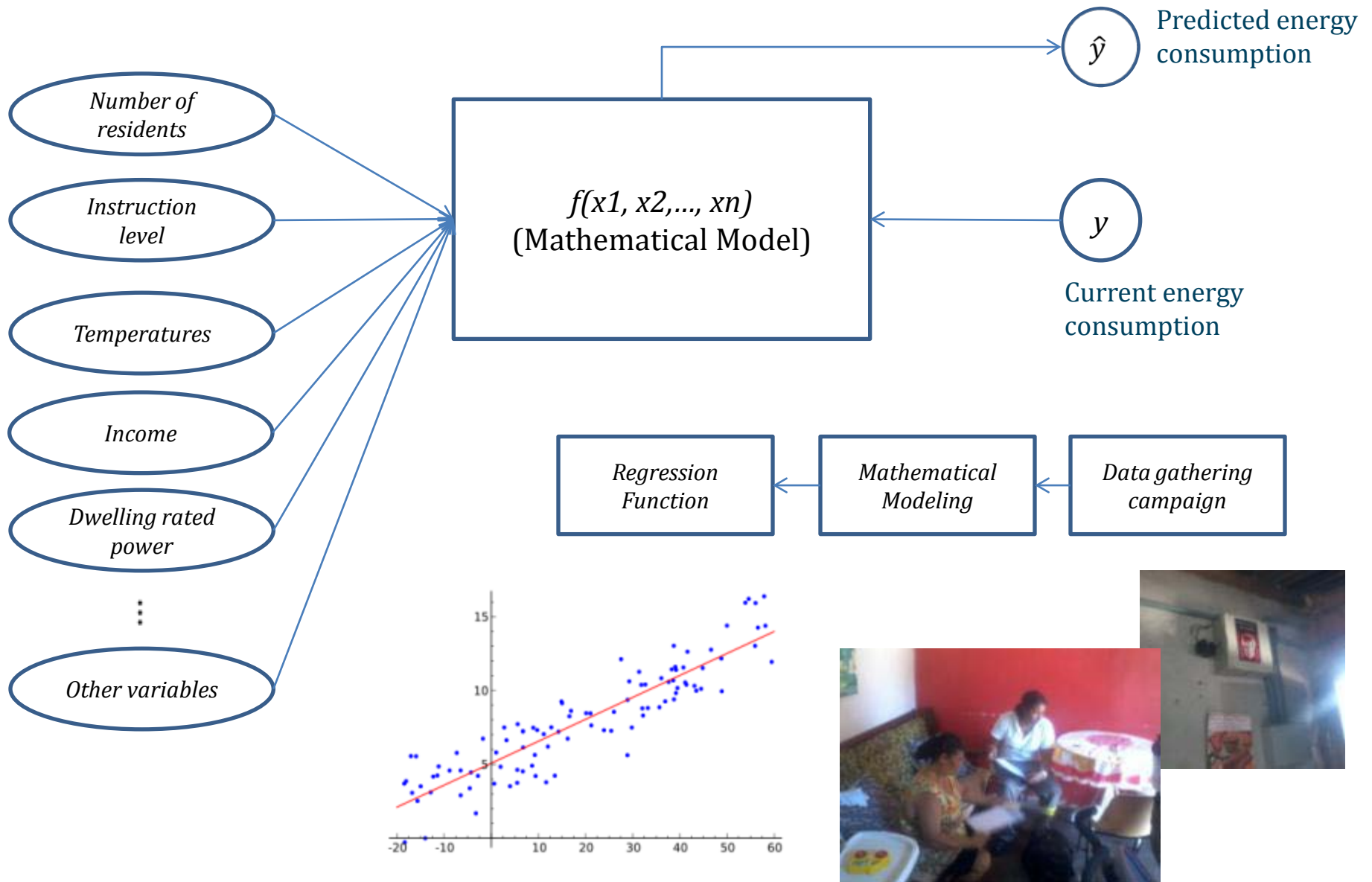
Refrigerator: Less 46 kWh/month

Interior rewiring: Less 16 kWh/month

**After:** 100 – 150 kWh/month, Bill: U\$ 24 (RT) US\$ 14 ( LIT )

# TOOL TO PREDICT THE HOUSE CONSUMPTION AFTER THE ACTIONS

## Data Gathering and Mathematical Modeling



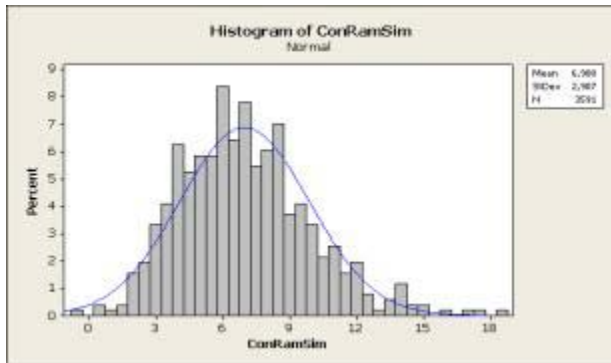
# Scenario Simulations and Assessment

- Simulated energy consumption.

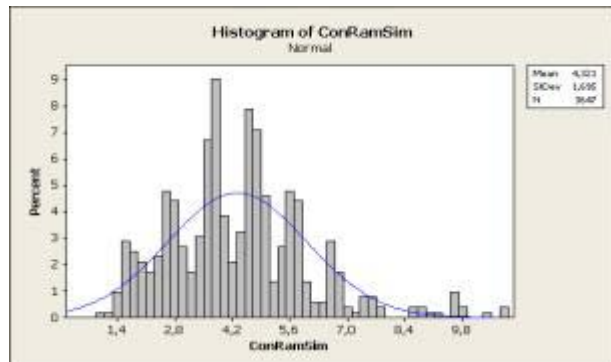
## Assessment

*Typical behavior of bad  
debit rate regarding  
consumption levels*

Baseline consumption



Consumption after energy efficiency actions



*Model-Based  
Approach for  
Decision Making*

***Projected  
Additional  
Revenue***

***Program  
Effectiveness***

***Investment  
Assessment***

***Continuous  
Improvement***

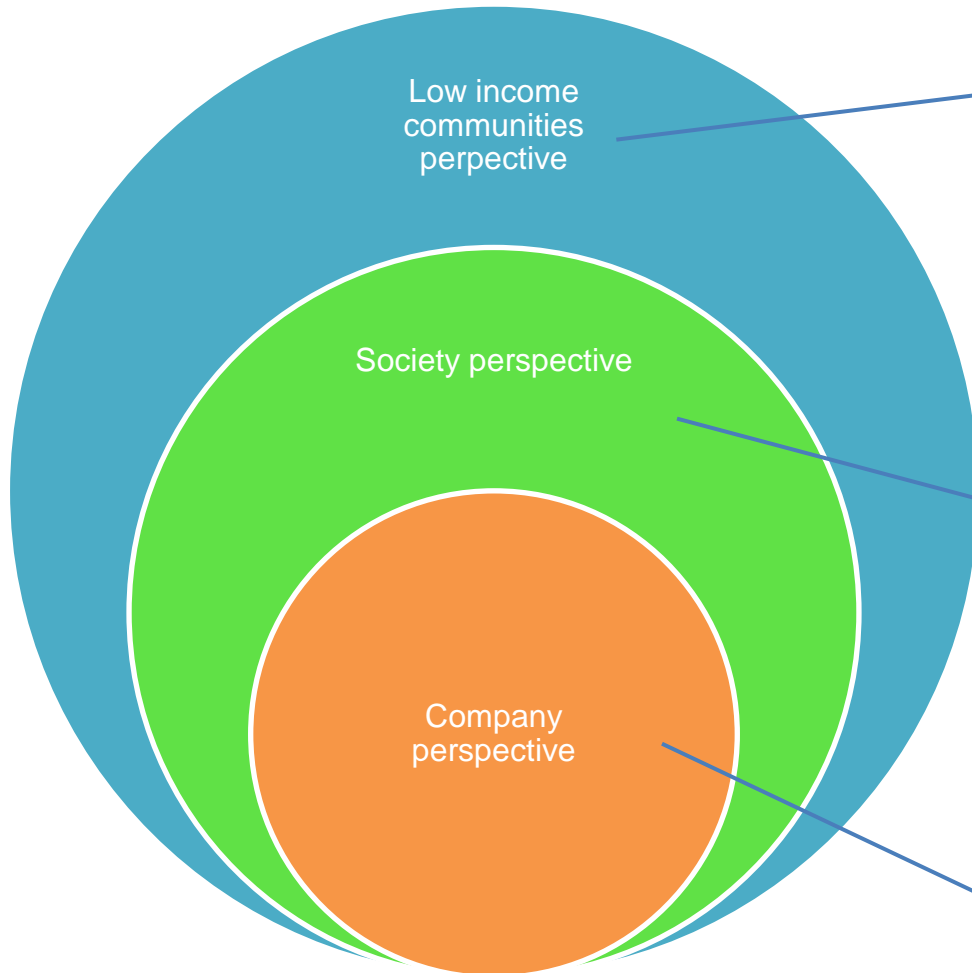
✦ Social responsibility works



## ❑ RESULTS

- ❑ 471.000 new connections done since 2004 in 1.185 communities
- ❑ Around 2 million people benefited
- ❑ Investment in the electrical network = US\$ 88,5 million
- ❑ Investment in the Efficiency Program = US\$ 91,2 million
- ❑ Total billing since 2004 = US\$ 556 million
- ❑ Total Revenue since 2004 = US\$ 422 million

# Win-Win-Win Process



- Registered address
- Safety increase
- Social inclusion
- Non-energetic gains

- Energy waste reduction
- Avoiding environmental hazardous energy sources
- Contribution for Social and Economic growth

- Commercial loss reduction
- Safety increase
- Energy quality increase
- Image improvement

# THANK YOU !!

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