
# Sustainable Businesses

## Transforming ideas into innovative models

ALCOA CPFL ENERGIA IBM Fibria natura bem estar bem Santander VALE Walmart

# The evolution of our sustainability approach

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## Ethos current work

- Sustainable Business Modeling
- Thematic working groups (practices and advocacies)
- Ethos Indicators and Reports
- First Steps

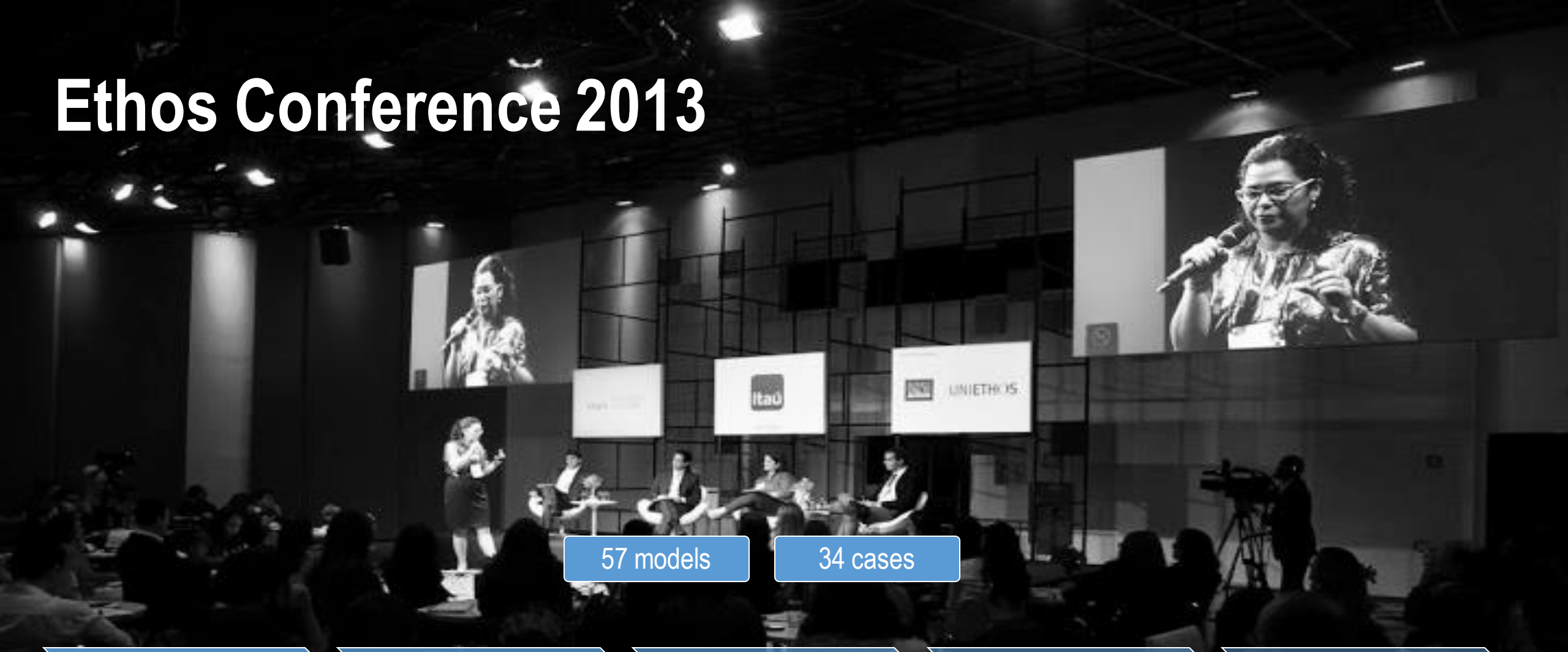

## Rio+20

- The most interested sector
- Fear of being alone
- Lack of tools, incentives and regulation

## History

- Business mobilization
- Articulation of actors
- Indicators and reports
- Voluntary commitments and policies

# Ethos Conference 2013

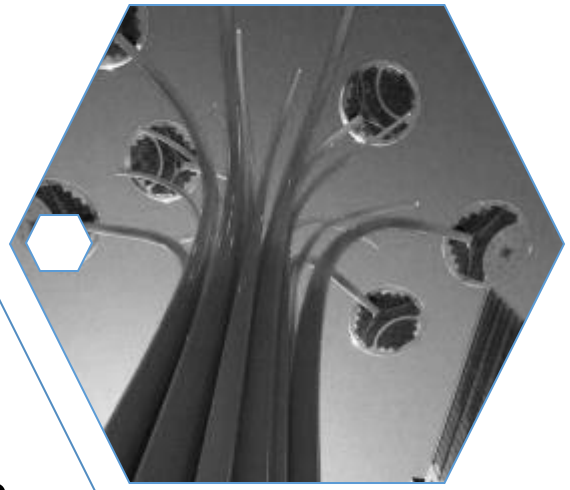



57 models

34 cases

Concept definition → Premises definition → Call for cases → Selection → Analysis

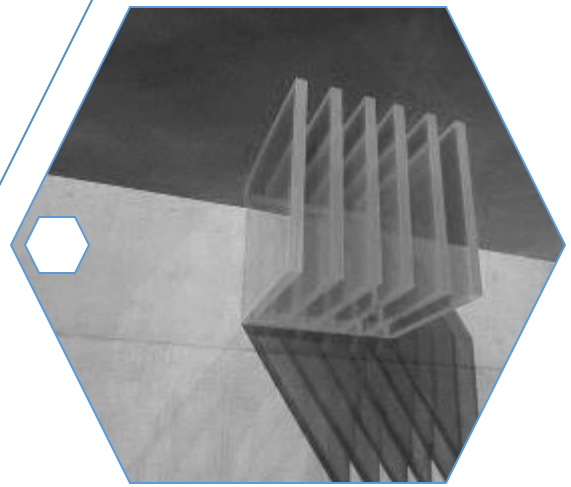
# Analysis content



Integration of environmental, social, economic and ethical dimensions

Financial soundness and relevance to the business

Competitive strategy, innovation and scalability



# Strategic planning conclusions

| Business | Regulatory | Competitive | Market |
| --- | --- | --- | --- |
| **Business as usual:** saturated market and performing poorly<br><br>New (sustainable) business still little consistent and underperforming when compared to business as usual<br><br>Sustainable business models are still too broad and can be not comprised by market agents | Lack of incentives for sustainable business<br><br>Persistence of subsidies to business as usual<br><br>Inevitability of new regulations | Search for financial consistency linked to risk prevention blocks disruptive innovation<br><br>Nowadays, innovation is only possible starting from or integrating sustainability | Social and environmental demands can be seen as:<br><br>A. Eternal cost barriers to business activity<br><br>or<br><br>B. Opportunities for new business<br><br>Accesses to new capitals and markets depend on sustainability policies and practices |

# Working model

## Combine inspiration and consistency

**Gather intelligences and skills that, added to the entrepreneurial leadership, will shape business and functional replicable tools**

Companies
(influence)

**ACTIVATORS**

*Design thinking mentors* (inspiration)

**DESIGNERS**

Value Chains
Entrepreneurs
Press

**PARTNERS**

Modeling
(consistency)

**SHAPERS**

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# Activators

# Designers e Shapers

# Value creation to society and companies

| Society | Companies |
| --- | --- |
| Treatment of sustainability dilemmas by connecting intelligences | Participation in an active process of developing strategic models and innovation |
| Stimulus for the development of public policies by demonstrating the feasibility of Sustainable Businesses | Participation in a new environment of inter and intra-sectoral sharing. |
| Promotion of more sustainable technologies and processes | Environment of creation and debate can generate drivers to inner innovation process and intrapreneurship |
| Modeling tools inducing financial mechanisms in the scale and speed of development of sustainable business | Possibility of contribution to the transformation of global, local and national scenarios (SDGs, new regulations, challenges cities) into business opportunities |

# Etapas

**Kickoff**
2 meetings

**Design Lab**
2 meetings

**modelling Studio**
2 meetings

**Preparatory session**

**Ethos Conference**

**Synthesis Meeting**

**Presentation of the business model and IT tool**

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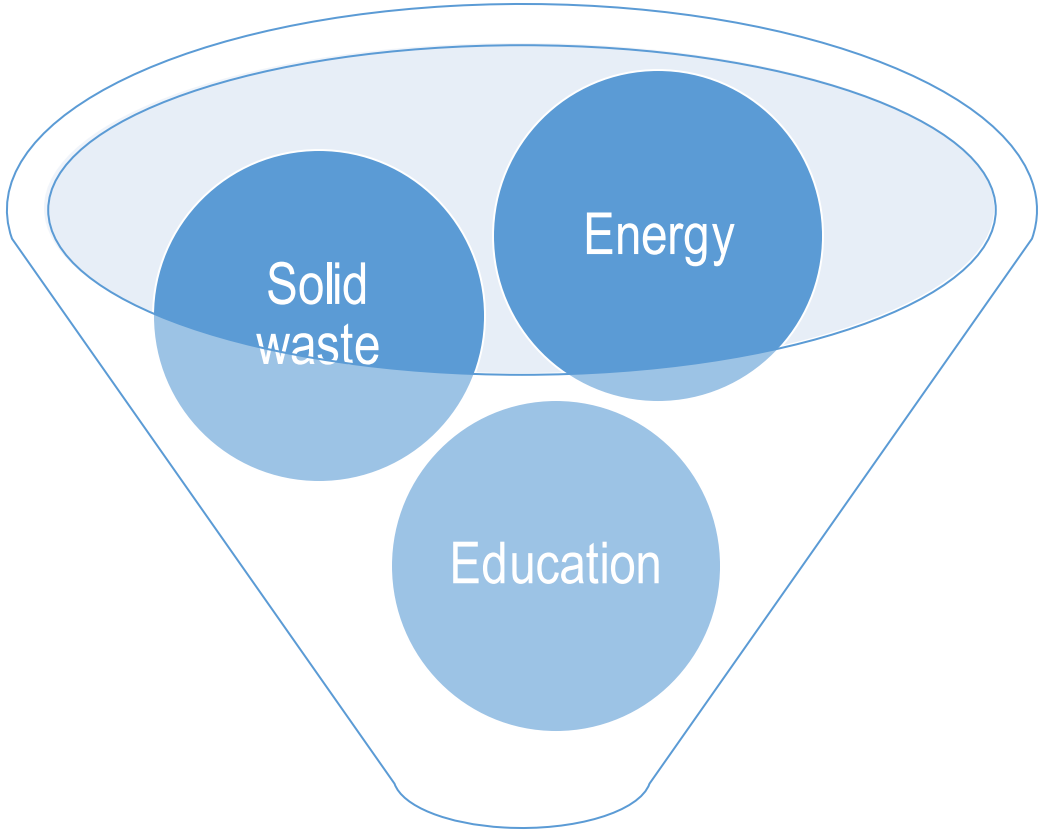
# Modeling

# Filters and themes

- Macroeconomic scenario
- SDGs
- Regulations
- Sources of funding
- Business models and cases




**Energy**

# Step 1: Canvas Business Model



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**Key Partners**

- Funds
- Trade associations
- Energy distributors
- Condos administration

**Key Activities**

- EPC

**Key Resources**

- Working capital
- FDIC
- EPC

**Value Propositions**

- Reduction of energy costs
- Sustainability

**Customer Relationships**

- Contingency contract

**Channels**

- Direct channels B2C

**Customer Segments**

- Commercial
- Residential condos

**Cost Structure**

- Sales force
- Capital cost
- EPC Team

**Revenue Streams**

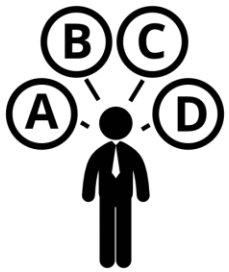
- EPC Sale
- Tuition linked to % of energy generated

## A DISTRIBUTED URBAN MICROGENERATION

- Installation of photovoltaic panels, mini wind turbines and other sources of power generation for urban residential and commercial customers
- Selling extra power to the grid (prosumers)

## B THERMAL EFFICIENCY IN INDUSTRY

- Investment in technologies and processes to reduce energy consumption in industry
- Focus on thermal processes




## D MICROGENERATION IN RURAL AREAS

- Complemental power generation to exploit land or agricultural production in rural areas
- Isolated populations may also be served

## C

- Self-energy production through investment in solid waste plants (waste2energy)
- Adjustment to the National Policy of Solid Waste

# A. Urban Distributed Microgeneration

## DESCRIPTION

> Investment in photovoltaic generation, wind and other generation sources for urban properties seeking microgeneration for own consumption and energy compensation

> Business model designed both to individual residences such as condominiums and commercial buildings

## RATIONAL

> Aneel legislation regulates the distributed microgeneration, as well as the compensation system of electricity and lines of credit

> High potential of solar power generation due to sunstroke in the country and other sources

> **Reduced dependence on centralized generation** e.g. hydro plants and thermal

> Utilities and service companies have already offering microgeneration of 307 + mapped suppliers

## CHALLENGES

> **Price control of energy and reduction rate:** investment in microgeneration takes longer to be paid, deployment cost R$ 30,000

> **Increased operational complexity** due to bidirectional energy flow

> **There are no specific public policies addressed to the development of DG**

> Need **of promotion and development** of national chain of both solar and smart grid products e.g. panels, and other components

## IMPACTED DIMENSIONS[1)]

> **Climate:** renewable energy, emissions reduction

> **Income:** reduction of energy costs

> **Industrialization:** fostering the development of domestic industry, supply chain...

> **Infrastructure:** reducing the need for investment in generation and centralized networks

> **Sustainable Cities:** reducing the environmental impact of cities

> **Economic vulnerability:** mitigating the impact of more expensive sources to diversify the matrix

## RELATED AGENTS [1)]

> Energy utilities and solar generation chain companies (manufacturers panels, installers ..)

> Companies in the smart grid chain (meter manufacturer, other components)

> Energy consumers

> Banks

## EXAMPLES

> Residences in the cities of Ribeirão Preto and Rio de Janeiro

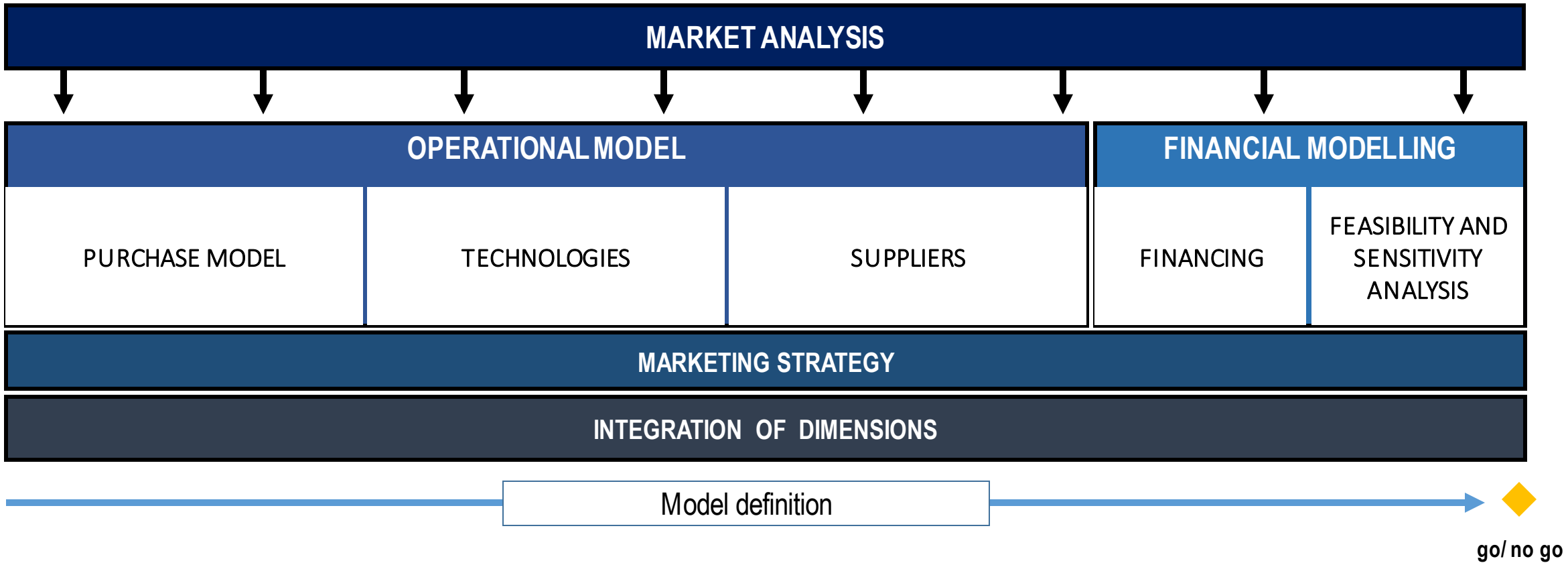
> **Australia: + 1 million panels installed in five years**

Business Line of CPFL Services

> **Europe:** solar PV in 15 regions representing 15% of consumption (3 panels per capita in Germany) 2)

1) Não exaustivo 2) Inclui algumas usinas solares

# Step 2: Classical Business Model (five dimensions)




Source: Instituto Ethos; SITAWI – Finanças do Bem

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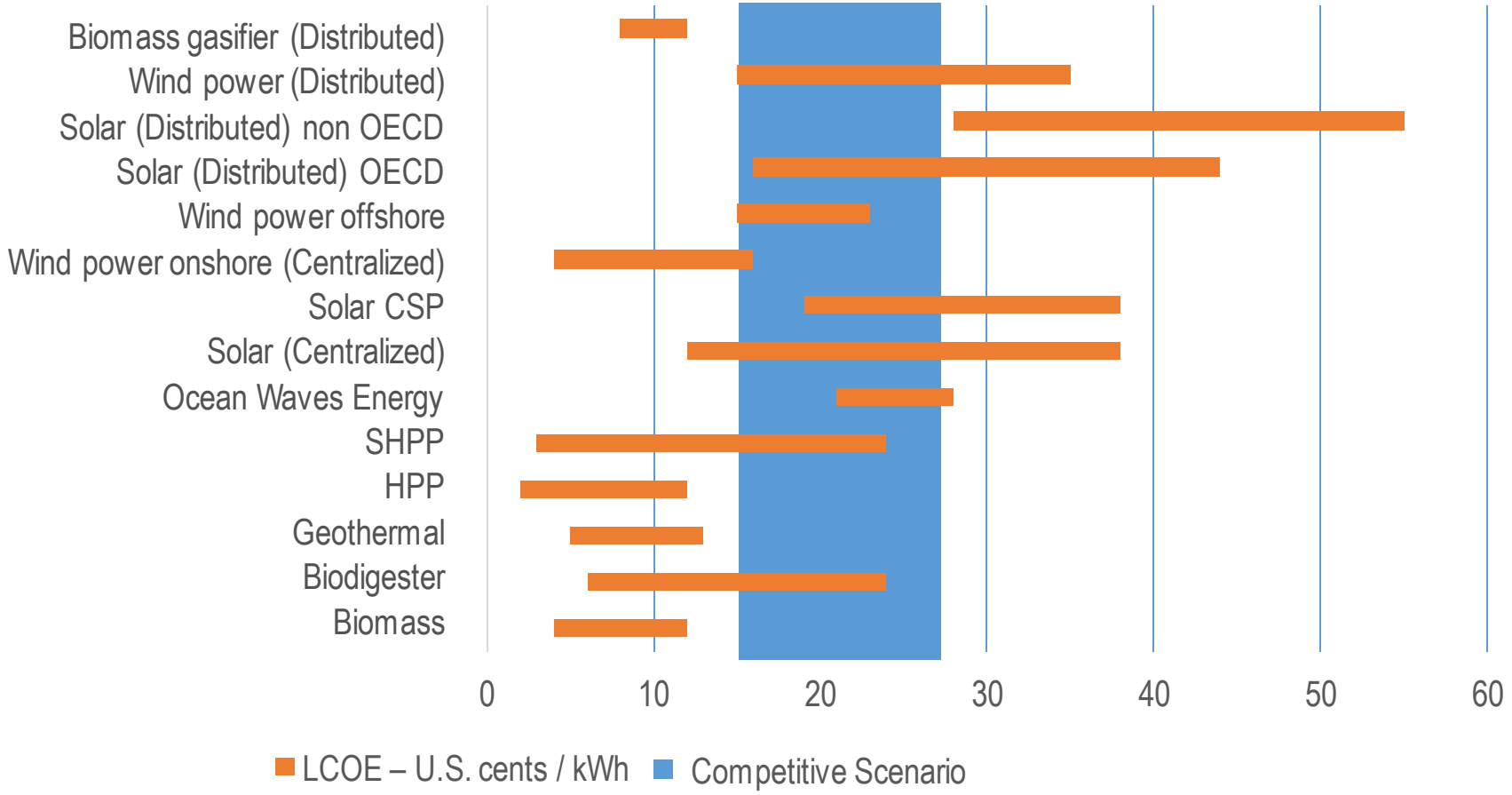
# I. Market

# Distributed generation is internationally competitive when compared to centralized, considering some scenarios of price and sources

## Business models for distributed micro and minigeneration




- Distributed generation proves to be competitive with alternative sources e.g. biomass, PCH Solar
- Solar PV and wind power are the technologies with higher competitiveness for distributed generation
- Price scenario still very volatile given factors such as:
  - Exchange rate (few countries have national production)
  - Capacity factor
  - Incentives...

Source: REN 21; Instituto Ethos; SITAWI – Finanças do Bem

# Challenges of the energy market in Brazil

**Macro**

- Increased participation of non-renewable sources in power generation
- Difficulty of developing large hydroelectric projects
- Delay and risk of generation projects and energy transmission

**Micro**

- Uncertainties an energy cost and availability in the short and medium terms
- Accomplishment of strategic guidelines of emission reductions
- Competition for CAPEX with projects with lower environmental impact
- Increasing consumer demand for sustainable products and solutions

***THE DISTRIBUTED GENERATION MODELING CONSIDERS CHALLENGES AND OPPORTUNITIES OF THE CURRENT MARKET***

***COMPLETE SOLUTION THAT COVERS THE MICRO CHALLENGES AND EXCEEDS AND MITIGATES THE RISK OF MACRO CHALLENGES***

# Positive points of DG in Brazil

**CURRENT**

- **Federal Resolution 482/12**: regulation of distributed micro (up to 100 kW) and minigeneration (up to 1 MW)
  - Proconsumers/bidimensional
  - Tariffs compensation system
- **Current projects in Brazil:** more than 150 micro and mini power plants
- High potential rate of solar insolation (in all Brazil) ≠ wind (Northeast and South)
- Estimated potential of investment **R$ 48.9 billion until 2030**

**FUTURE**

- **A-5 auction of solar generation:** 450 projects, entry of new players in the national market
- **Access to BNDES lines:** new rules of financing (interest rates and nationalization level)
- **Introduction of smart grids** – smart grid e smart meter
- Sell extra power to the grid

***The favaroble future scenario will reduce costs and expand advantages of the proposed model***

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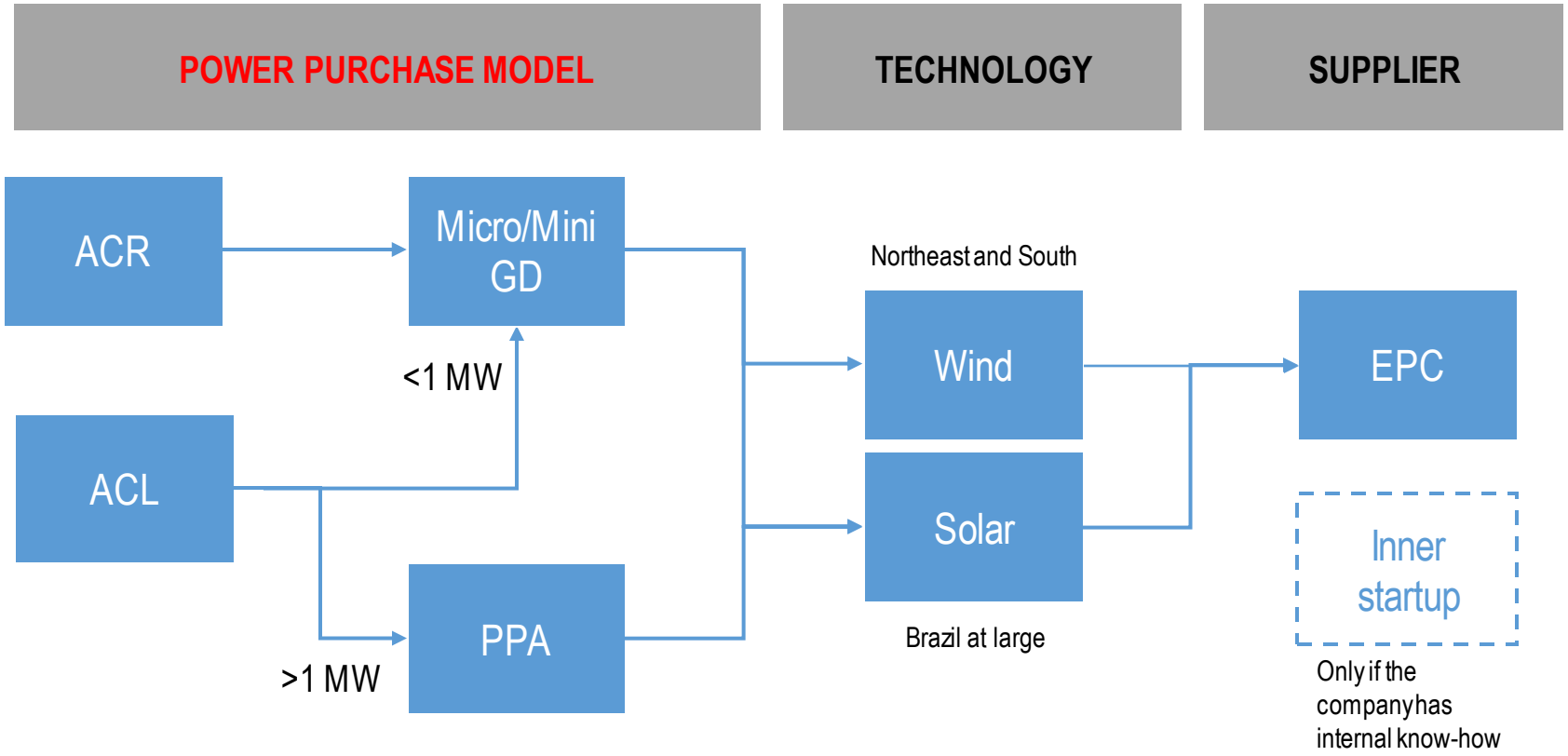
# II. Operational

# Operational Model




- The model takes into account the company purchase energy scenario
- Definition of solar and wind power as technologies
- Recruitment of EPC for the purchase of equipment, project design and implementation

Sourcee: Instituto Ethos; SITAWI – Finanças do Bem

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# III. Financial

# We identified six lines of financing: focus on industrial and commercial sectors - lack of specific guidelines for residential

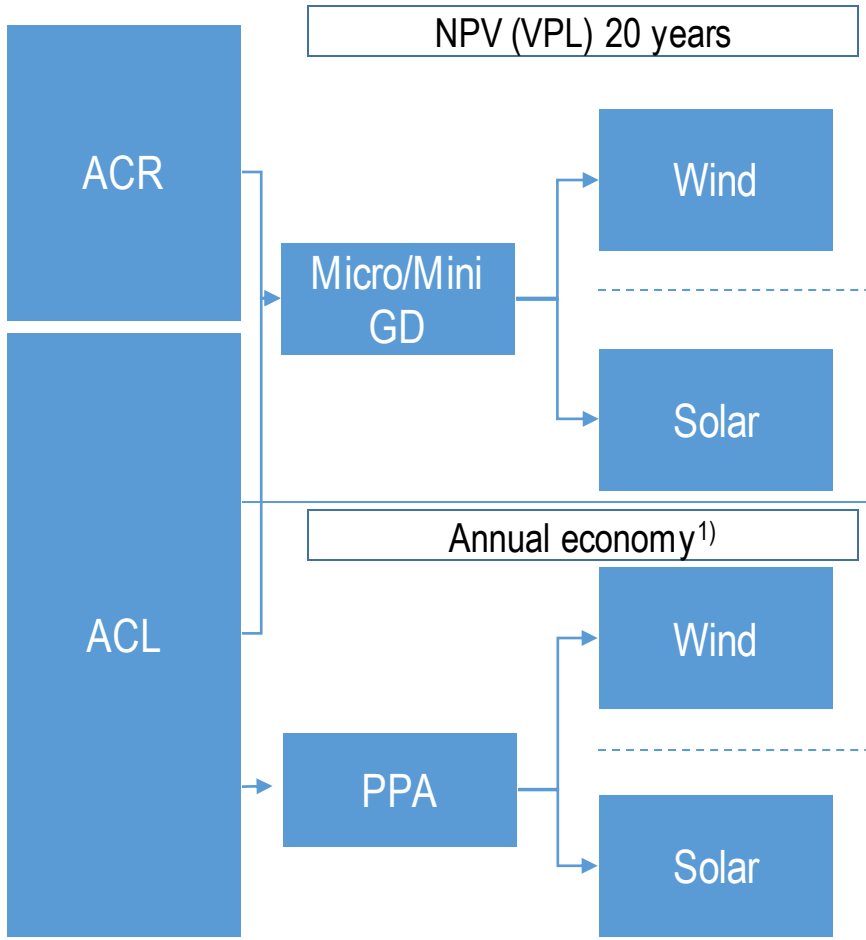
| | INSTITUTION | FINANCING LINES | CHARACTERISTICS | COMMENTS |
|---|---|---|---|---|
| Comercial/ Industrial | BNDES | • *BNDES Automático* (direta e indireta)<br>• *Cartão BNDES*<br>• *Finame*<br>• *Finem* (over 20 MM)<br>• *Fundo Clima* | 6 months of grace period; TJLP + intermediation + payment of BNDES and FI | • Finame and BNDES Card only available for technologies with minimum nationalization level (60%)<br>• Private banks operate only by transferring BNDES lines |
| | DESENVOLVE SP Agência de Desenvolvimento Paulista | • Green economy | Deadline of 120 months; 24 months of grace period; 100% funded | |
| | Banco do Nordeste | • Environment | Deadline of 144 months; 24 to 48 months of grace period; 80 to 90% funded | |
| | CAIXA | • *BCD Ecoeficiência* | Deadline of 60 months; 6 months of grace period; 100% funded | |

Source: Desk research; Instituto Ethos; SITAWI – Finanças do Bem

# Financial modeling - sensitivity analysis

PRELIMINARY

Scenarios of viability R$ '000




NPV (VPL) 20 years

Annual economy[1)]

| TIR [100 KW] | | | Installed power | | |
|---|---|---|---|---|---|
| Selic [11%] | TIR 15% | TIR 20% | 10 KW | 100 KW | 1.000KW |
| -312 | -320 | -328 | -38 | -312 | -3.060 |
| 20 | 13 | 4 | -4 | **20** | **262** |
| | | | **2 MW** | **5 MW** | **10 MW** |
| - | - | - | 577 | 1.443 | 2.887 |
| - | - | - | 337 | 842 | 1.685 |

Source: Instituto Ethos; SITAWI – Finanças do Bem 1) Regarding ACR (TE+TUSD KW + TUSD KWh)

# Additional gains (micro and macro scenarios)

**Macro**

- Less impact of large projects (e.g. Belo Monte)
- **Losses reduction in transmission and distribution of energy**
- Diversification of the energy matrix
- More participation of alternative sources
- National Reduction of emissions

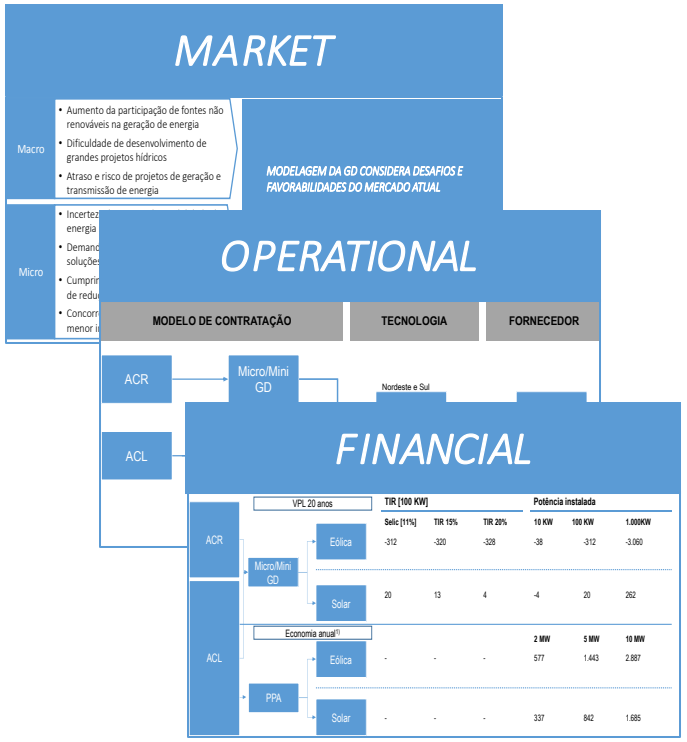
**Micro**

- **Taxes are avoided**
- **Lower exposure to price variations**
- Reducing vulnerability to supply shocks of energy and dependence of the national integrated system
- Capture the profit margin generators (utilities)
- Greater energy efficiency (total consumption and peak period) - reduction of investment in infrastructure and equipments

The energy is generated where it is needed.

*Obs: taxes + distribution costs = more than 50% of the final cost of energy*

# Internal analysis to implementation




*The business **modeling** satisfies (timeline & mindset)?*

*YES*

PROJECT IMPLEMENTATION

- Integration of dimensions
- Marketing Strategy

*NO*

CONSIDER OTHER ELEMENTS

- Strategic guidelines
- Quantification of intangibles
- Use of other instruments such as PPA (leasing), energy savings etc.


# IV e V. Marketing Plan and Integration of Dimensions

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# Next steps

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Under construction

Marketing Plan and Integration of Social, Environmental and Ethical Dimensions

Modeling conclusion

Modeling tool delivery

“Business model innovation is a wonderful thing. At its simplest, it demands neither new technologies nor the creation of brand new markets: it´s about delivering existing products that are produced by existing technologies to existing markets. And because it often involves changes invisible to the outside world, it can bring advantages that are hard to copy.”

Karan Girotra and Serguei Netessina

(Insead)


Thank you!
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