
THE COLOMBIAN CASE: SUBSIDY HISTORY, ROADBLOCKS AND A LOOK AHEAD

ENERGY SUBSIDY REFORMS FOR A BRIGHTER TOMORROW

OCTOBER 31, 2018

-HERNANDO JOSÉ GÓMEZ-



IMPACT OF FUEL PRICES ON THE COLOMBIAN ECONOMY

If fuel prices increase by 10%:

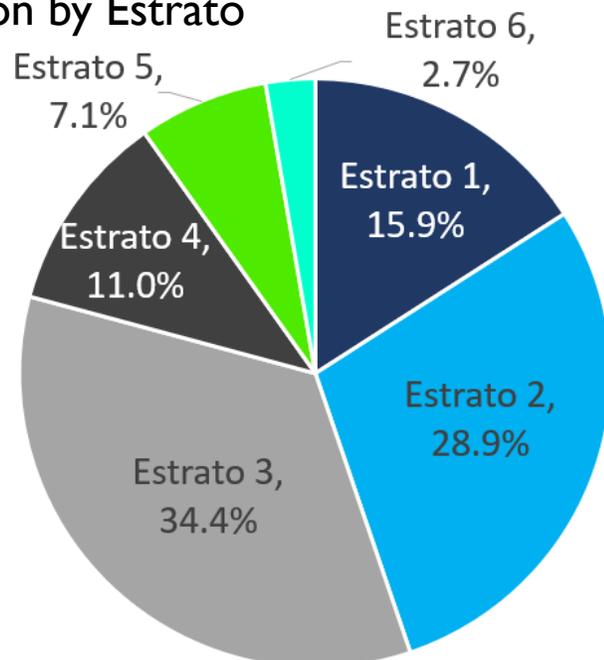
- **GDP contracts by 0.19%**
- **Inflation increases by 0.46%**
- **Transport sector contracts by 0.79%**
- **Household consumption contracts between 0.62% - 0.87%**
- **Price of household basic consumption basket increases between 0.6% - 0.7%**

HOW DOES THE SUBSIDY SYSTEM WORKS IN COLOMBIA? ELECTRIC ENERGY: A ONE OF A KIND CASE

VITAL MINIMUM COMSUMPTION: A threshold that establishes the level of consumption that a household needs in order to satisfy basic needs: 173KWh for “hot weather” regions (0 to 1000 meters above sea level) and 130KWh above.

“ESTRATO”: A classification scale ranging from one (poorest) to six (richest) applied to every house in the country, based on the physical characteristics of the property (material of walls, ceiling, floor, and conditions of its surrounding area).

House distribution by Estrato



Subsidy System for **residential use** and consumption units under the vital minimum

Estrato 1:	50% subsidy
Estrato 2:	40% subsidy
Estrato 3:	15% subsidy
Estrato 4:	0% subsidy
Estrato 5:	20% contribution
Estrato 6:	20% contribution

Note: All the industrial and commercial users contribute to subsidize residential users.

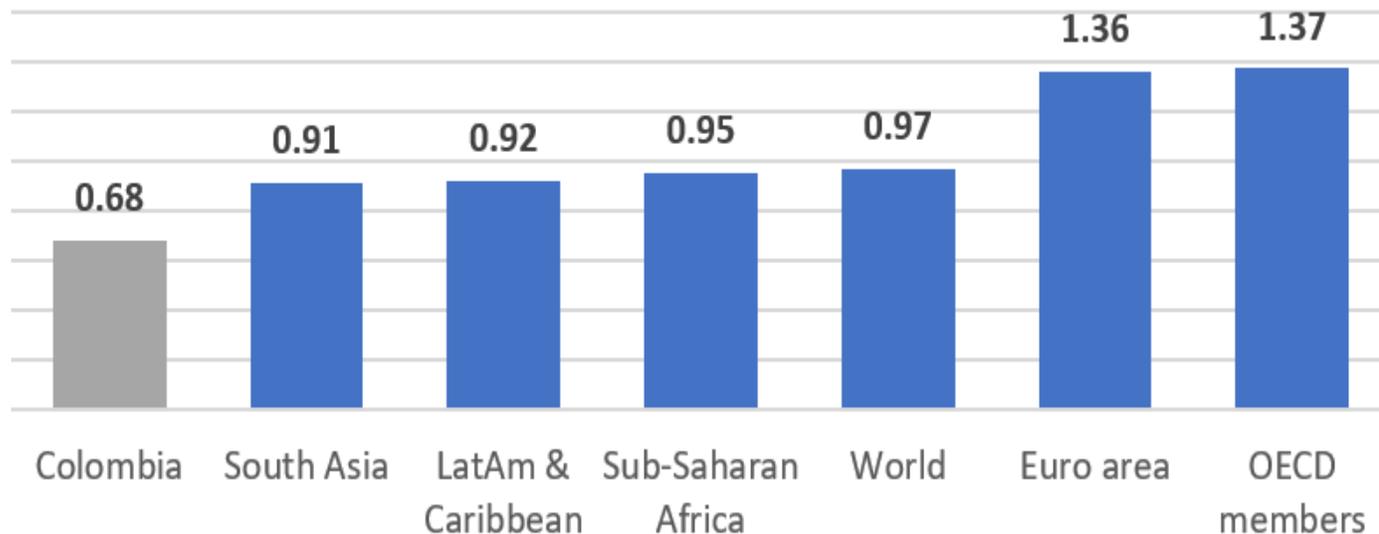
HOW DOES THE SUBSIDY SYSTEM WORKS IN COLOMBIA?

FOSSIL FUELS: REGULATION TO SMOOTH PRICES

FUEL PRICE STABILIZATION FUND: When crude prices are low, gas and diesel prices stay the same to save the difference so the prices do not need to increase when crude goes up, protecting consumers from extreme price variations.

PRICE CALCULATION SYSTEM: Official mathematical formula that sets the fuel price every month to reflect the trends in the international market and the opportunity cost (international parity).

Pump price for gasoline (US\$ per liter), 2016



Key Variables in the price calculation

Producers income:	52%
National and regional tax	25%
Distribution margin retail	7%
Ethanol income	6%
Transport	5%
Distribution margin wholesale	4%

SOME REFLECTIONS AROUND THE SUBSIDY SYSTEM

- The solidarity principle behind the system is merely symbolic:** 80% of households are subsidized while less than 10% of households actively contribute, so the cost is mostly assumed by the government.
- The large financial burden for the state means that **there is no room to put other policies in place**, such as subsidizing the energy consumption of certain SMEs.
- The stabilization fund for fuel has become an implicit subsidy:** since its creation in 2007, the “savings” in good times have always been less than the “expenses” when the crude price is high (the total fund deficit hovers around 2.3 USD Billion)
- In practice, this means that **the government is subsidizing the consumption of heavy pollutants** while at the same time offers no incentives to ease the transition towards cleaner alternatives.

SOME ENERGY EFFICIENCY CONSIDERATIONS...

- Industrial SMEs in Colombia relied on carbon fuels (coal and diesel) for boilers, ovens and other machinery because of the subsidies available and the poor reliability of the power grid.
- This situation changed in the past two decades when the national interconnection system became a reliable service and local power providers invested in adequate transformers for the industrial areas (with an exception in the Caribbean cost).

A precondition for the industrial sector to adopt cleaner and more efficient technologies is the dependability of the continuous and high quality service of the power grid.

SOME ENERGY EFFICIENCY CONSIDERATIONS...

- Air pollution is one of the main causes of sickness, increasing the costs of public health. There has been several air pollution emergencies in Medellin Colombia, forcing local authorities to impose curfews for private cars with a great cost for the local economy due to the disruption in businesses.
- Taking into account the surge of carbon taxes and the prevalence of outdated and inefficient technologies, companies will profit from changing fuel based machinery into electric powered devices and their diesel trucks for hybrids or electric ones.

The main barrier that SMEs face in the modernization process is the lack of availability and the cost of capital funds. The financial sector could play a critical role.

SOME ENERGY EFFICIENCY CONSIDERATIONS...

- A practical alternative to facilitate this conversion is the use of leasing and renting operations. Leasing based loans give more guarantees for the lenders and force the beneficiaries to give adequate maintenance to the equipment involved.
- Renting operations are ideal for those that want to minimize the capex requirements for the firm and have proven successful for securing adequate transportation services for their merchandise avoiding the hassle of owning a truck fleet.
- The price of electric vehicles is higher than the regular diesel or gas powered vehicles, but the operation costs are up to one third less. Hence, in this case leasing operations seem to be an adequate answer to facilitate the financing of these firms' decisions, as they offer a way to adapt to the payment service of the loans by the firms, in particular SMEs.

ROADBLOCKS TO ADOPT NON-CONVENTIONAL RENEWABLE ENERGY ...

Governance

- Involvement of too many institutions.
- Coordination issues.
- Lack of leadership.
- The operators of distribution networks do not have incentives to connect more agents.

Market

- Perception of high cost.
- the remuneration system is not suitable for the new technologies
- Lack of access to instruments to finance the projects.
- Positive externalities are not valued.

Regulation

- Definition of “Cargo por Confiabilidad”.
- Long term contract regulation.
- Regulation of deviations.
- Distributed generation.
- Complex environmental licenses.
- Bidirectional measurements.

Technology

- Lack of qualified personnel.
- Insufficient technological maturity.
- Transport infrastructure.
- Studies of resource potential.

REFORMS TO JUMPSTART THE MARKET OF NON-CONVENTIONAL RENEWABLE ENERGY ...

Strategy: Investment Promotion in non-conventional renewable energy projects

- Actions:**
1. Auctions for the Anticipated Contracting of Long-term Energy
 2. Adjustments to the Compensation Methodology by Reliability.
 3. Rationalization of Requirements and Procedures for the FNCER Projects.
 4. Tax on Carbon Emissions for Energy generation.

Strategy: Foster Market Integration for non-conventional renewable energy plants

- Actions:**
1. Priority of Dispatch and Intraday Markets.
 2. Regulation of Access and Connection to National Transmission Networks.
 3. Modernization of the Wholesale Energy Market.

Strategy: Development of support product and services for Non-conventional renewable energy plants

- Actions:**
1. Complementary Services Markets.
 2. Energy Storage Devices.
 3. Market for Renewable Energy Certificates

ENVIRONMENT FOR THE ADOPTION OF SUSTAINABLE ELECTRIC TRANSPORT...

PROS

- The current transport system is inefficient, expensive, and a long term cause of complain for the private sector.
- There is a large untapped potential for electric generation.
- There has been a large increase in private vehicles in the last years (less incentive for families to change a recently bought diesel/gas car).

CONS

- Lack of the public infrastructure required to make electric transport work (charging stations).
- High upfront cost to buy electric vehicles.
- Tax collection through hydrocarbons.
- There is high dependence for traditional freight trucks for merchandise transport (no other transportation modes such as trains).

REFORMS TO JUMPSTART THE MARKET OF ELECTRIC VEHICLES...

Strategy: National Transportation Electrification Policy.

- Actions:**
1. Electric Mobility for the official sector.
 2. Electrification of existing trains Exclusive purchase of Electric Buses.
 3. New permits exclusively for electric taxis.
 4. Promote the penetration of electric vehicles in interurban transport (freight and passengers).

Strategy: Infrastructure, manufacturing and local technical service

- Actions:**
1. Technical regulation for electric stations and private charging points.
 2. Economic regulation for the electricity rate use for charging the vehicles
 3. Manufacturing promotion and mobility conversion.
 4. Training for electric vehicles technical service

Strategy: Tax and financial plan

- Actions:**
1. 100% financing of investment in electric buses and taxis
 2. Amortization plan vs fuel savings with the recharge
 3. Tax collection through electricity for recharging.

THANK YOU!

