

Beyond Energy Savings:

The Multiple Benefits of Mexico's Household Appliances Phase-out Scheme

March 5, 2018

Mexico's Household Appliances Phase-out Program 2008 - 2017

Benefits

- I. Replace non efficient appliances in Low-Income Households
- II. Promote the Application of New Mandatory Standards in Energy Efficiency and Environmental Protection
- III. Reduce the Consumption and Demand of Electrical Energy
- IV. Reduce Emissions of Greenhouse Gases and perform Final Disposal of Refrigerant Gases
- V. Support a Countercyclical Public Policy in Order to Keep Manufacturing Jobs During the 2007-2008 Global Financial Crisis

Features of the Program



Household Refrigerators: 1,599,812

Average Loan Amount: 380 USD

Interest Rate: Below Market Value

Payback Period: 4 years

SENER (Ministry of Energy)

Guarantee: 42.02 MDD

Rebates: 138.80 MDD

Final Disposal of Inefficient
Refrigerators: 45.40 MDD

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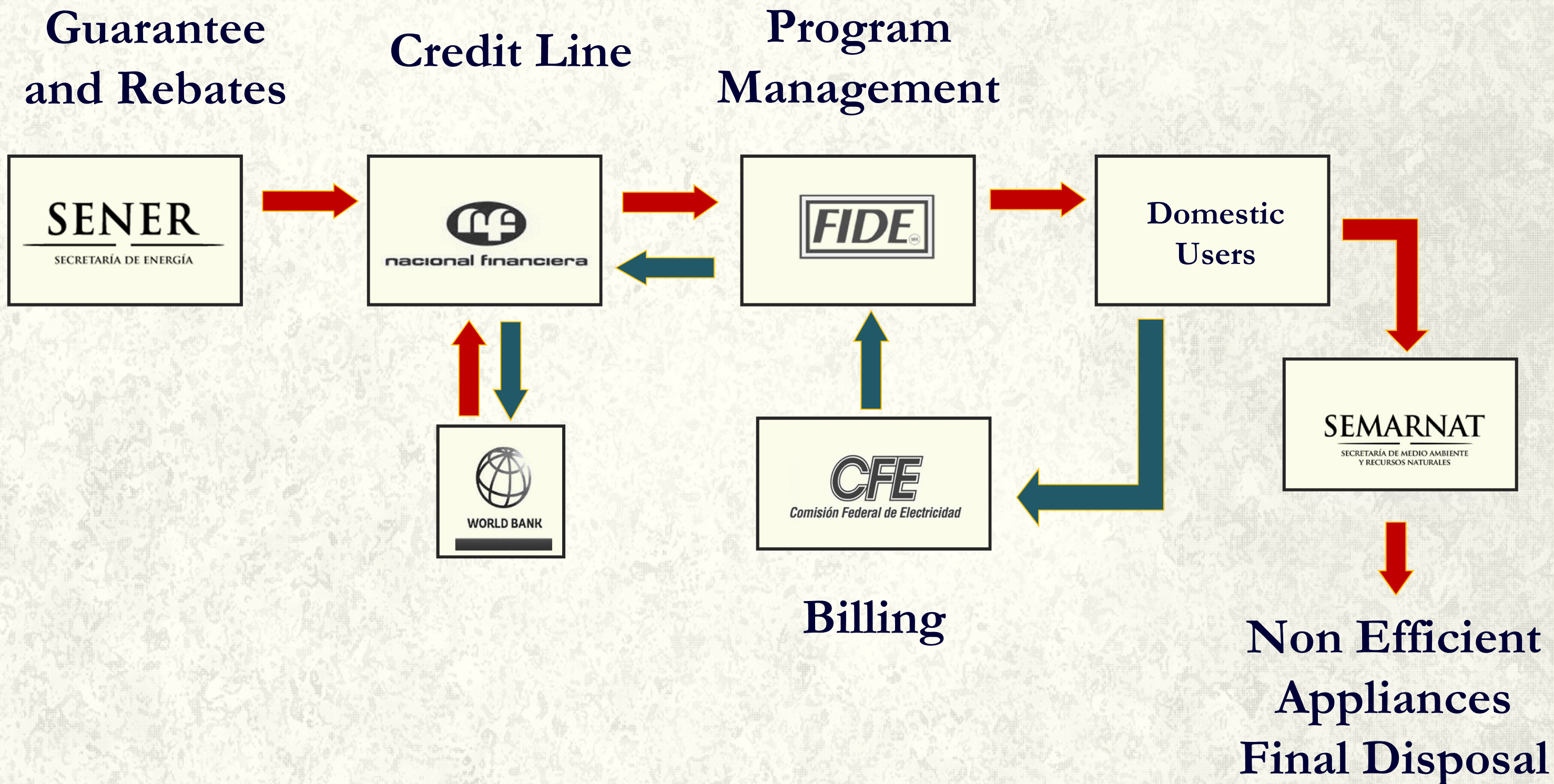
Program Manager

CFE (Public Utility)

Debt Collection

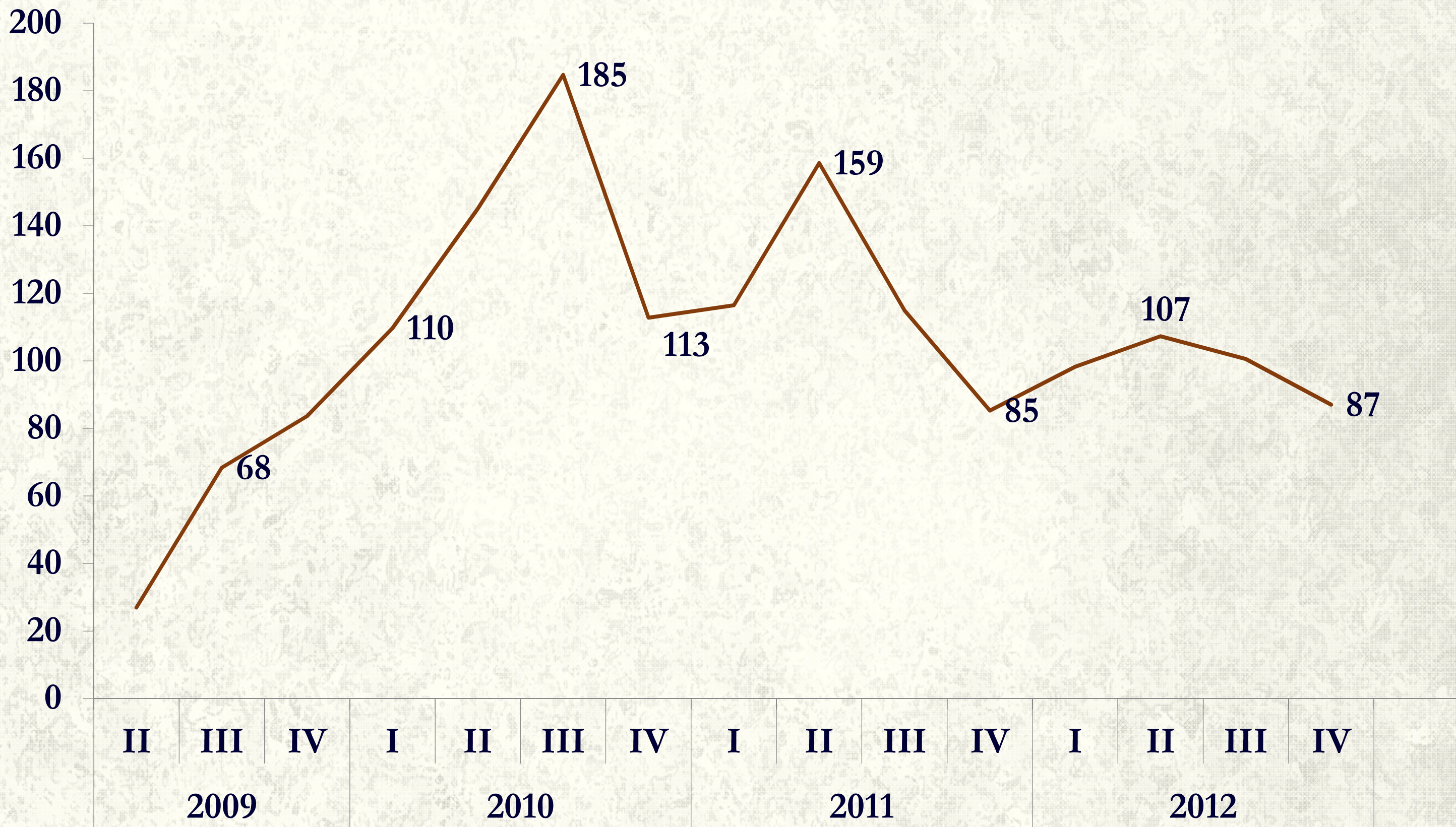
NAFIN (Development Bank)

Credit Line: 343 MDD



Household Credits per Quarter in Thousands

Credits



Credits

1,600,000

1,400,000

1,200,000

1,000,000

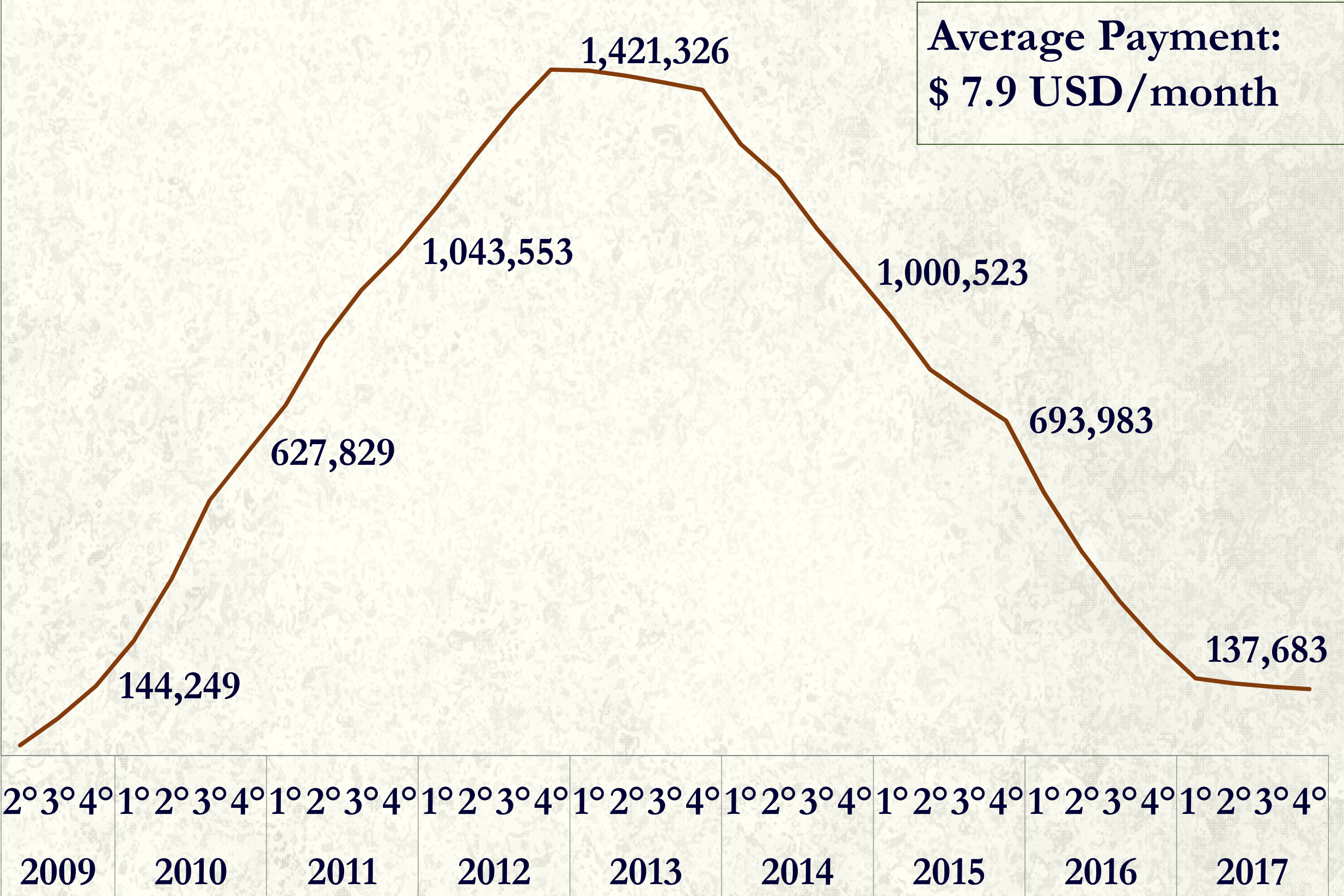
800,000

600,000

400,000

200,000

-



I. Replace non efficient appliances in Low-Income Households

I.1 Improve the Appliance Stock

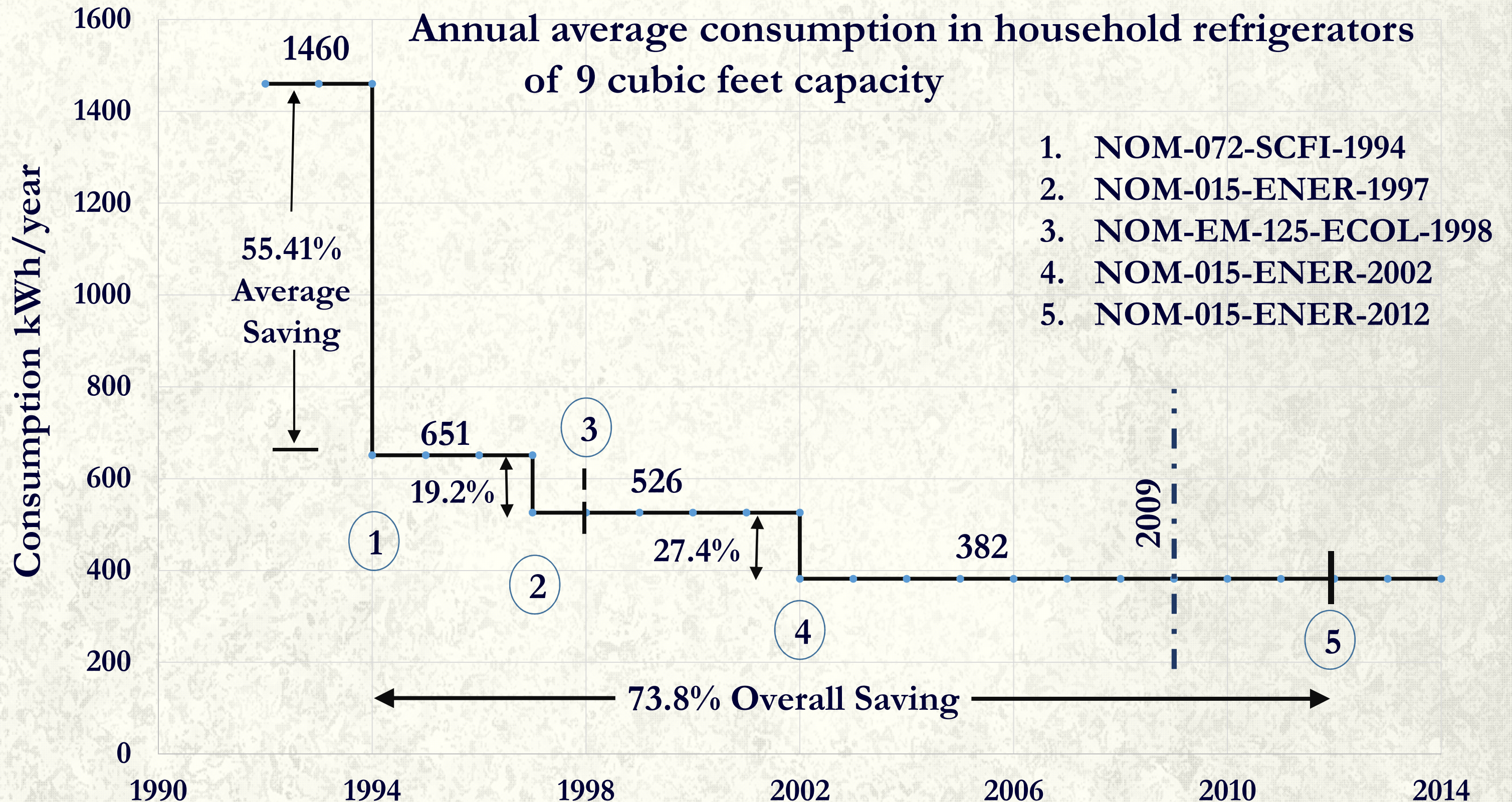
1,599,812 Inefficient Refrigerators with 9 or more years old and capacities between 9 and 18 cubic feet, replaced in low-income households (low consumption domestic tariffs)

Introducing Efficient Refrigerators with higher capacity (up to two additional cubic feet) with Automatic Defrost.

I.2. Economic Savings for Families

Electrical billing reduced at the end of the loan payment (4 years)

II. Promote the Application of New Energy Efficiency and Environmental Mandatory Standards



III. Reduce the Consumption and Demand of Electrical Energy

Consumer Subsidy in Domestic Electricity Tariffs

Domestic Tariffs	Monthly Consumption kWh	Beneficiaries (%)	Average Monthly Bill US Cents/kWh ⁽¹⁾	Average Consumer Subsidy (% of Energy Cost)
Base	0 – 75	28%	5.85	77.0
Intermediate	76-125	28%	9.62	62.2
Over Intermediate	126-250	37%	20.43	19.8
High Consumption (<i>Real Energy Cost</i>)	>250	7%	25.46	0.0

III. Reduce the Consumption and Demand of Electrical Energy

Manufacture Date	Number of Refrigerators ⁽¹⁾	Electrical Energy Saving	Consume Saving in GWh/year	Demand Saving in MW	Subsidy Savings MDD
Before 1995	281,760	73.8%	135.4	6.12	13.1
1995-1997	280,401	41.3%	61.0	6.10	7.0
1998-2002	1,037,651	27.4%	108.8	22.61	2.3
Total	1,599,812	----	305.2	34.83	22.4

IV. Reduce of Greenhouse Gases Emissions and Perform Final Disposal of Refrigerant Gases

Concept	Amount (Thousands)
Avoided Emissions due to New Efficiency Energy Appliances	287.3 tCO ₂ e/year
Refrigerant Gases Removed	384.8 tCO ₂ e/year

Gas Phase-out	ASHRAE Code	Tons
CFC	R12	27.6
HCFC	R22	65.3
CFC & HFC	R12 & R 134	11.8
HCFC & HFC	R22 & R 134a	0.7
Total	---	105.4

105.4 Tons. equiv. to 384.8 Thousands tCO₂e



104
Collection Centers

V. Supporting a Countercyclical Public Policy During the Global Financial Crisis 2007-2008

Concept	Amount
22 Manufacturing Factories	1,231 New Permanent Jobs 3,396 New Temporary Jobs
4,598 Points of Sale	7,254 New Temporary Jobs
104 Collection and Destruction Centers	428 New Permanent Jobs

Economic and Financial Summary

Program net Earnings:

Credits	129.9 MDD
Savings in Energy Subsidies	22.4 MDD/year

Government Expenditures

Rebates:	138.8 MDD
Final Disposal of Inefficient Refrigerators:	45.4 MDD
Credit Losses:	22.6 MDD

Total Government Expenditures:
206.8 MDD

Household's Payback Period: 4 years

Governmental Payback Period:
3.4 years

Additional Benefit:
Energy Demand Saving: 24.38 MDD

Thank You for Your Attention



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III. Reduce the Consumption and Demand of Electrical Energy

Manufacture Date	Number of Refrigerators and Average Consumption kWh/month							
	Base Rate 0-75 kWh/month		Intermediate Rate 76-125 kWh/month		Surplus Rate 126-250 kWh/month		DAC >250 kWh/month	
	No.	Avg. Cap.	No.	Avg. Cap.	No.	Avg. Cap.	No.	Avg. Cap.
Before 1995	114,482	9.32	78,375	9.03	82,003	9.28	6,900	10.36
1995-1997	86,813	9.28	83,521	8.96	97,168	9.34	12,899	10.54
1998-2002	245,805	9.05	287,614	8.71	412,752	9.15	91,480	10.42

III. Reduce the Consumption and Demand of Electrical Energy

Manufacture Date	Refrigerators per Domestic Tariff/Manufacture Date				
	Base Tariff	Intermediate Tariff	Over Intermediate Tariff	High Consumption Tariff	Total
Before 1995	114,482	78,375	82,003	6,900	281,760
1995-1997	86,813	83,521	97,168	12,899	280,401
1998-2002	245,805	287,614	412,752	91,480	1,037,651
Total	447,100	449,510	591,923	111,279	1,599,812