"Low Carbon Development Strategies and the Mexican NAMA for the Housing Sector"

Juan Mata Sandoval
Director General de Políticas de Cambio Climático

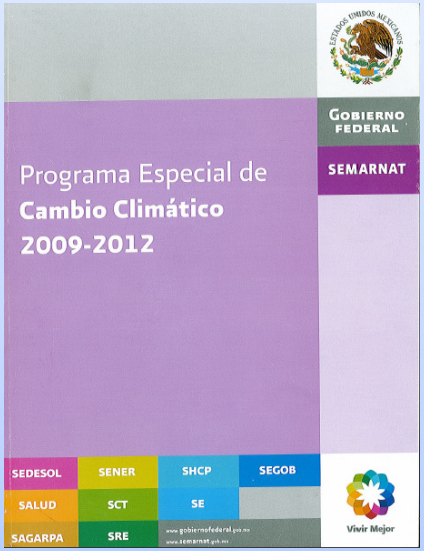
December 6, 2010

SEMARNAT

SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

Vivir Mejor

Mexico's Climate Change Program PECC



Published in August, 2009

- Defines mitigation actions to reduce 51 Mt CO_2e by 2012 or 6% with respect to baseline (786 Mt CO_2e)
- Sets general guidelines to establish an emission reduction pathway towards 2030 and 2050 (aspirational target of 50-50 compared to the 2000 base year).
- Identifies key systems most vulnerable to climate change and points out highest risk areas for each system
- All NAMA´s included in PECC have federal budget guaranteed
- Though require financial assistance to implement improved MRVs actions.

SEMARNAT

SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

PECC is structured with …

SEMARNAT

Long Term Vision

- Global long term vision
- Mexico's mitigation pathway
- Mexico's adaptation pathway

Mitigation 86 goals

- Energy supply
- Energy use
- Agriculture, forests and other land uses
- Waste

Adaptation 142 goals

- Hydrological resources
- Agriculture, livestock, forestry and fishery
- Ecosystems
- Integrated risk management
- Energy, industry and services, communication and transport infrastructure
- Land zoning and urban development
- Public health

Components of a cross cutting policy 66 goals

- Foreign policy
- Institutional strengthening
- Economics of climate change
- Education, training, information and communication
- Research and technological development

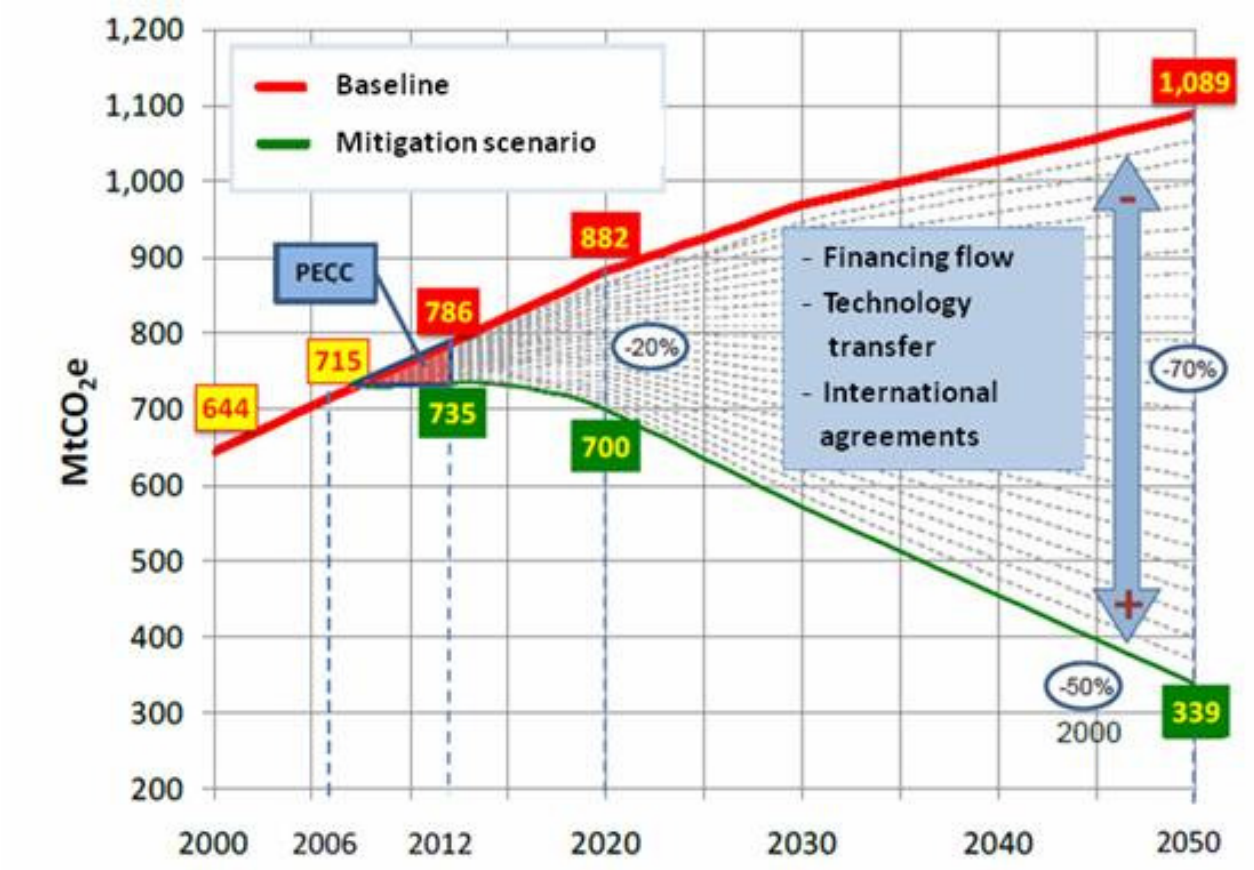
Vivir Mejor

SEMARNAT

SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

Long-Term Vision
Mexican mitigation pathway

SEMARNAT



The long-term aspirational goal…

- Is not a legally binding commitment
- It is conditioned to:
  - technical and financial support
  - the signature of a multilateral agreement

The indicative goal states that, if the international community were determined to successfully face the immense challenge that climate change poses, Mexico would be ready to fulfill its corresponding part.

MEXICO

GOBIERNO FEDERAL

SEMARNAT

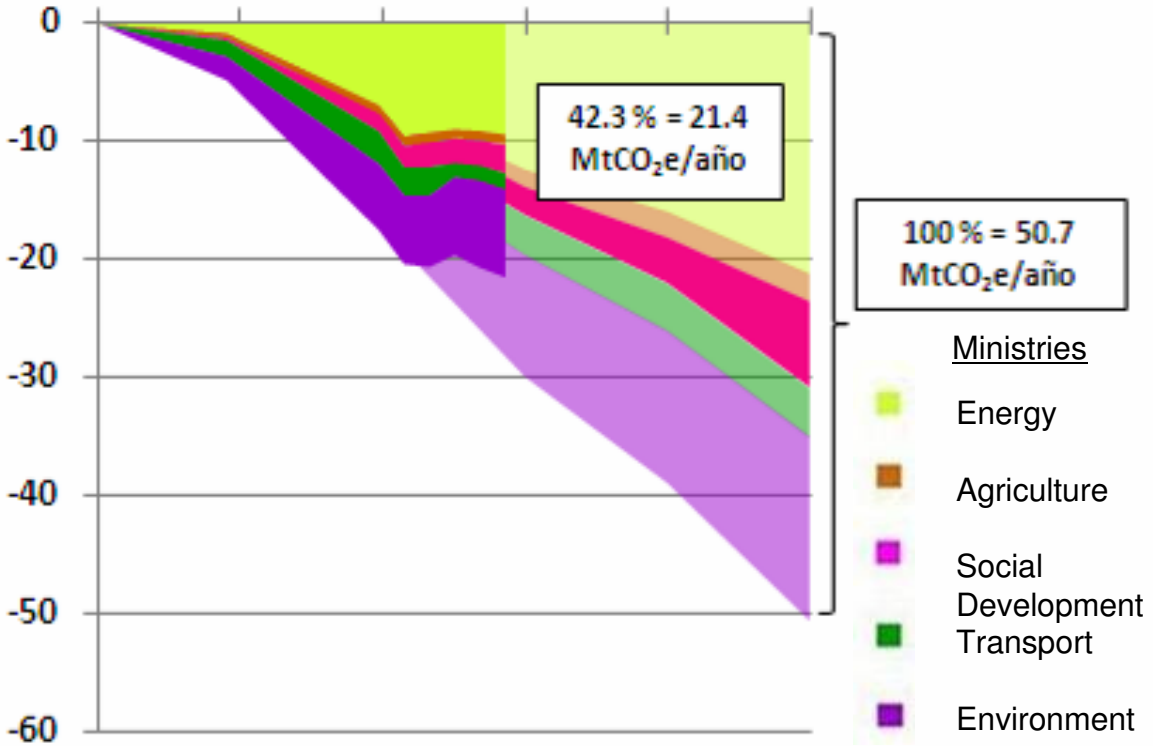
SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

PECC. Mitigation goals. 2012
Today's status

SEMARNAT

Actual GHG emissions abatement up to October 2010:

- 21.4 $MtCO_2e$/year
- 42.3% of the 2012 total mitigation goal (51 $MtCO_2e$/year).
- 71.3% of the 2010 mitigation goal (30 $MtCO_2e$/year).



Vivir Mejor

SEMARNAT

Increasing interest in developing supported NAMAs that can enhance the impact of PECC.

Mexican ambition: Implementation and operation of first supported NAMA from 1st half 2012 onwards

Potential NAMAs for Mexico

SEMARNAT

Housing (SEMARNAT-CONAVI/Germany BMU)

- Accelerate penetration of green mortgage package (100% by 2020)
- Upgrade energy efficiency technology package for Green Mortgage

Transport (SEMARNAT-PROTRAM-CTS/Netherlands)

- Accelerate penetration of Massive Public Clean Transport Systems
- Expand technology spectrum additional to BRTs (electric, hybrid, etc)
- Old units replacement and routes optimization in medium cities

Cement Industry (SEMARNAT-CANACEM/CCAP)

- Increase ashes/pozolan percentage on cement mix
- Increase use of biomass based fuels (WTP sludge)

Iron and Steel Industry (SEMARNAT-CANACERO/CCAP)

- Energy efficiency measures

SEMARNAT

SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

SEMARNAT

Housing NAMA

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

COMISIÓN NACIONAL DE VIVIENDA

PointCarbon
A Thomson Reuters Company

SEMARNAT

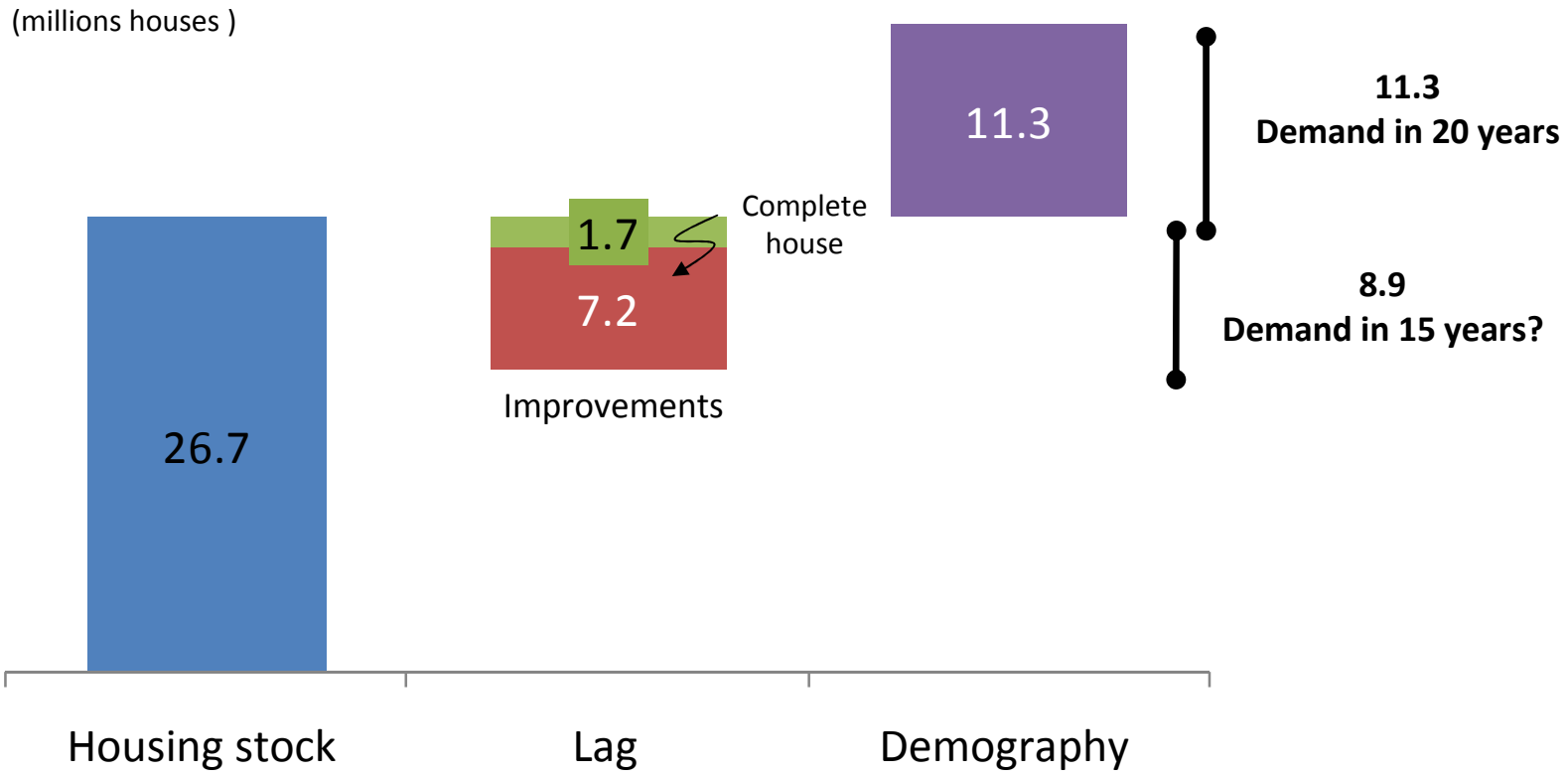
Vivir Mejor

SEMARNAT

SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

Massive housing demand exist within next 20 years

SEMARNAT



Source : Conavi, Coneval

Vivir Mejor

SEMARNAT

SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

CONAVI strategy for sustainable housing development

SEMARNAT

CONAVI establishes strategy, housing policies and practices to achieve sustainability in housing

Regulation	→ **Standards, codes, certification**	**Residential Model Code (guideline for adoption)** **Sustainability Criteria (guidelines)** **Clean Development Mechanism (CDM)** **Green Mortgage (extra credit line for green technologies)** **Subsidies Programme (Está es tu Casa)**
Research & development	→ **Building materials, building systems, evaluation, etc.**	
Training and information	→ **Building materials, building systems, evaluation, etc.**	
Financing instruments for builders, manufacturers and buyers	→ **Subsidies, Green mortgage, Carbon certificates, Fiscal and administrative incentives**	

Vivir Mejor

Status and trends current housing programmes

- **"Ésta es tu casa"** Programme (CONAVI)
  - Minimum EE requirements => subsidy for house owner
  - Goal: 95,000 households annually until 2030
- **Green Mortgage**
  - Use of CONAVI's requirements for Green Mortgage for house owners
  - Goals: 6% of existing housing stock by 2020
    - Translates to 2 million new houses by 2020 (= 10% increase per year)
- Impact: 0.96 t CO2/house/year (based on Green Mortgage survey)

NAMA could enhance GHG impact

- The NAMA is aimed to enhance GHG emissions reductions through the “Green Mortgage” and "Ésta es tu casa”.
- Following steps define the incremental enhancement through NAMA:
  - increased **penetration**
  - technology **up-scaling**

More houses covered during the same time and/or
More ambitious efficiency standards and/or inclusion of technologies that are currently not covered.

- In the medium to long term
  - Transformation of the **voluntary** “Green Mortgage” and "Ésta es tu casa" programmes into a holistic urban planning process including **mandatory** building codes would further increase emissions reductions

SEMARNAT

SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

SEMARNAT

¡Thank you!

Juan C. Mata Sandoval
juan.mata@semarnat.gob.mx

Vivir Mejor

SEMARNAT

Back-up slides

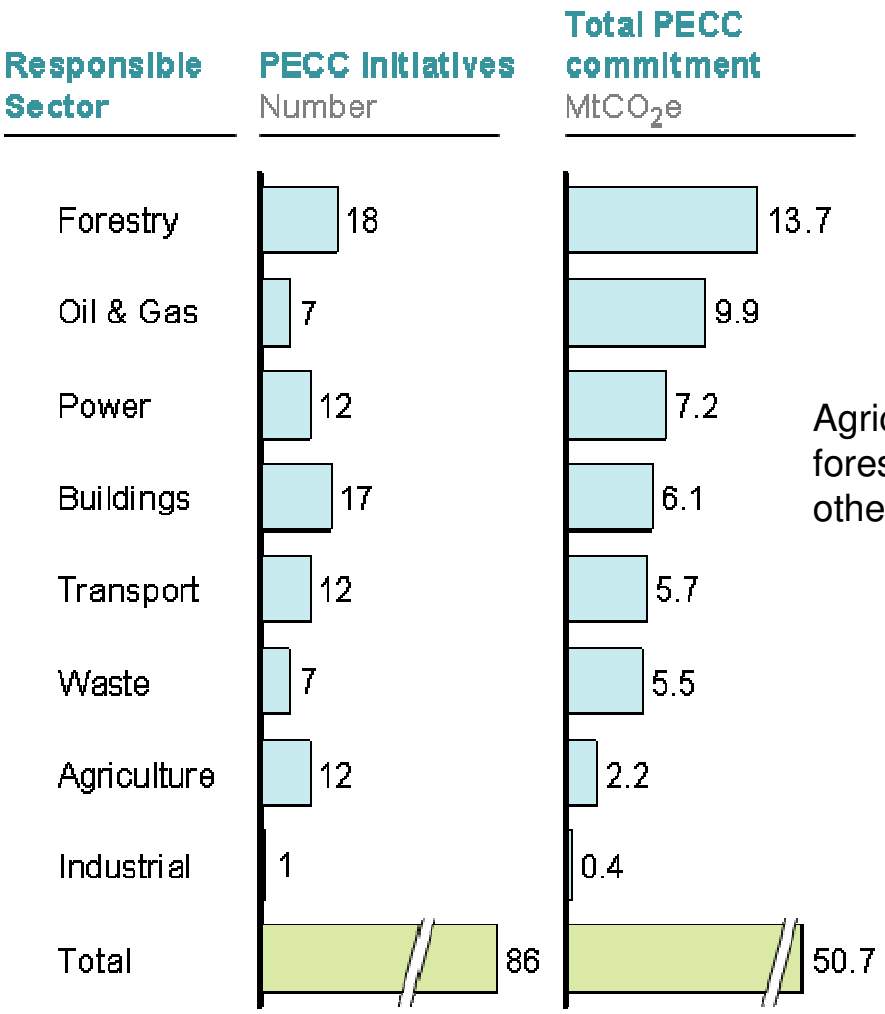
Vivir Mejor

Mexico's Climate Change Program PECC

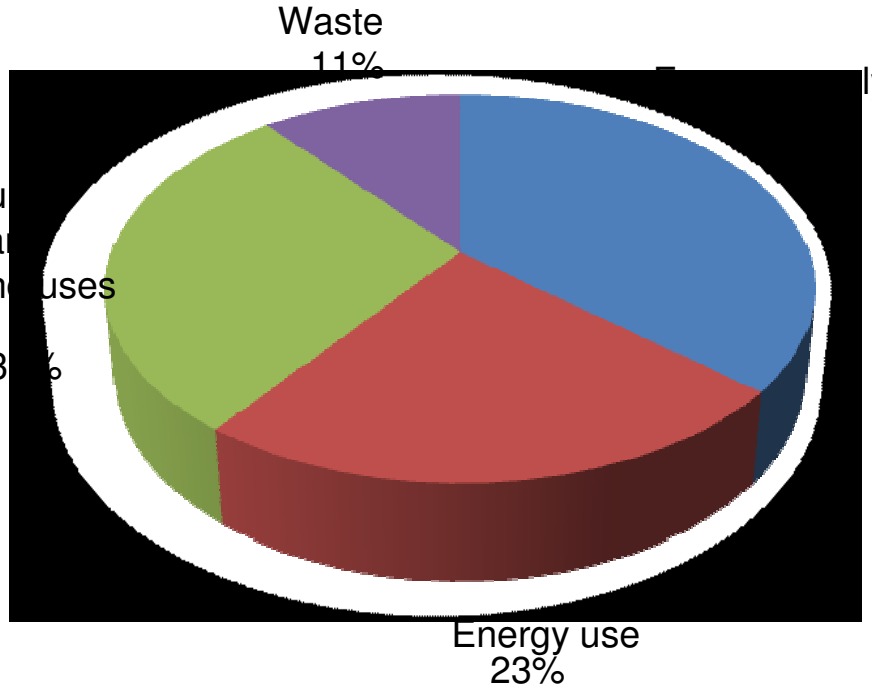
PECC 2009-2012:

- The program fosters national efforts on climate change during a five year period 2008-2012, and sets the groundwork for continued efforts beyond 2012.
  - Includes unilateral NAMA´s as a developing country.
  - Strengthens government institutions.
  - Funded with federal budget.

PECC. Mitigation goals by 2012



Annual reductions by 2012: 50.7 $MtCO_2e$



PECC. Mitigation goals

22 goals may deliver 85% of the 51 $MtCO_2e$ abatement target by 2012

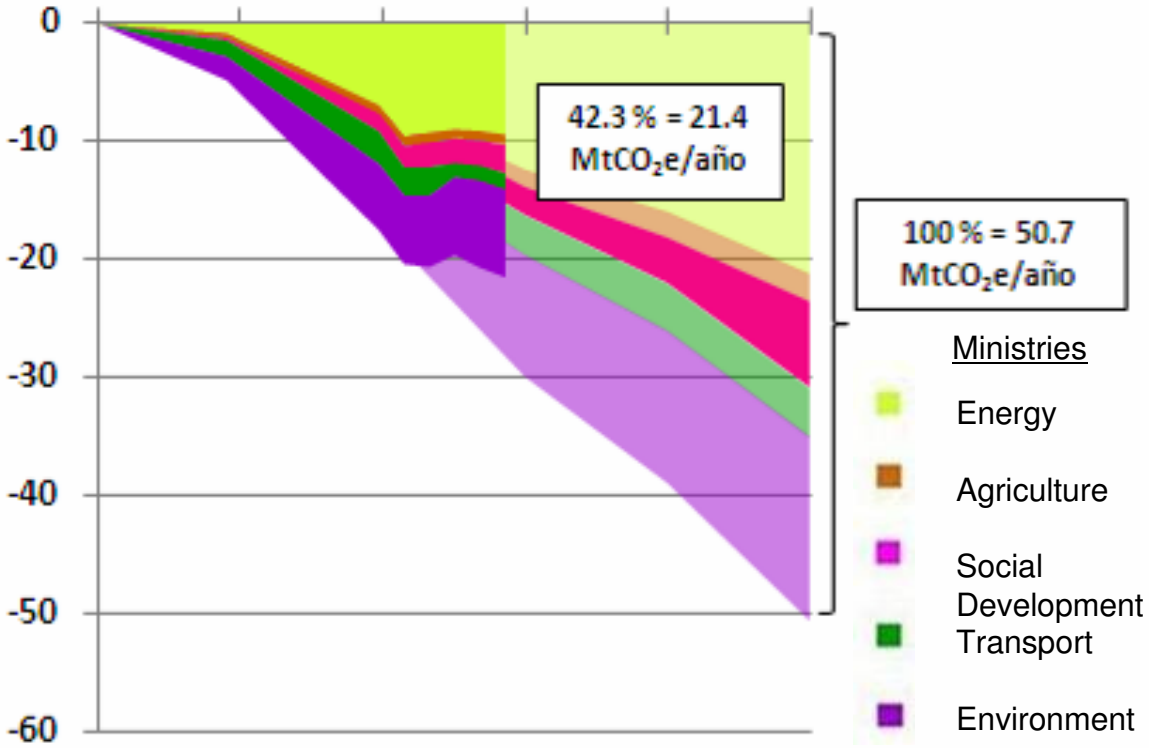
Represent 50% of goal

Sector	Initiative Code	Description	Impact $MtCO_2$
Forestry	M.64	Incorporate more land into the Sustainable Forestry Management system	4.4
	M.78	Design and implement an incentive scheme to reduce degradation of forests and deforestation	3.0
	M.66	Create payment mechanisms for forestlands	1.4
	M.65	Incorporate terrestrial ecosystems into the UMAS system	1.4
	M.67	Incorporate lands into forestry ecosystems of the ANP	1.1
	M.73	Establish a commercial forestland	0.6
Oil & Gas	M.01	Injection of gas in Cantarell	6.9
	M.03	Operational oil and gas efficiency projects	1.2
	M.04	New operation of a cogeneration plant in PEMEX	0.9
Power	M.18	Partner with private investors to increase renewable energy in self-generation for private sector by 2 GW	3.7
	M.15	Increase CFE generation of wind power	1.2
	M.11	Finish CFE thermoelectric project in Manzanillo	1.1
	M.14	Finish the construction of hydroelectric plant La Yesca	0.8
Buildings	M.37	Substitute appliances including refrigerators, air conditioners, and other equipment and light bulbs with more energy efficient devices	2.7
	M.43	Install efficient wood burning stoves	1.6
	M.39	Promote eco-friendly technologies in homes through “green mortgages”	1.2
Transport	M.31	Increase train share of federal cargo	1.6
	M.27	Create 38 new stretches of highways	1.2
	M.29	Take 15 K "clunkers" out of federal transport system	1.1
	M.26	Increase clean cargo and passenger transportation under Semarnat’s "Clean Transport“ program	0.9
Waste	M.82	Develop 29 projects aimed at reducing or eliminating landfill emissions	4.4
Agriculture	M.63	Implement a planned grazing use on pastureland	0.8

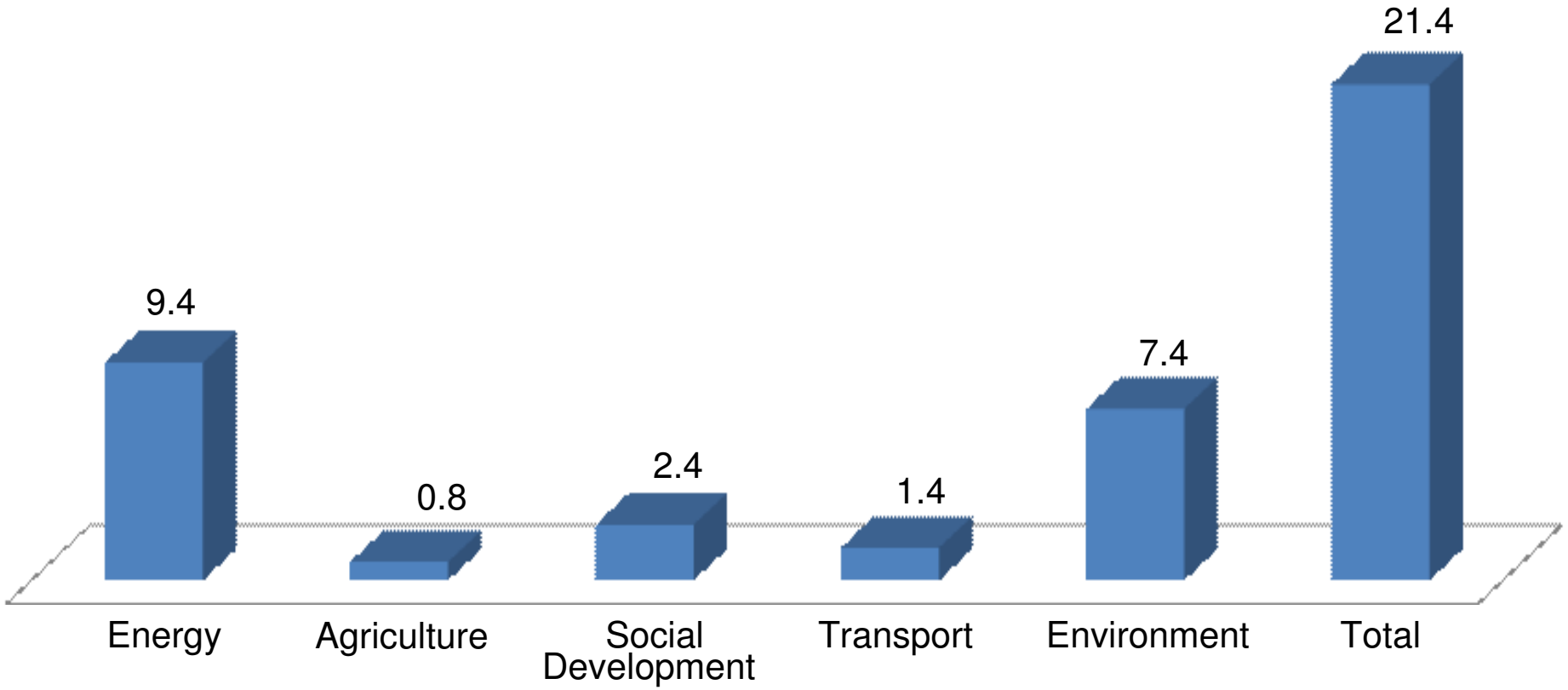
PECC. Mitigation goals. 2012
Today's status

Actual GHG emissions abatement up to October 2010:

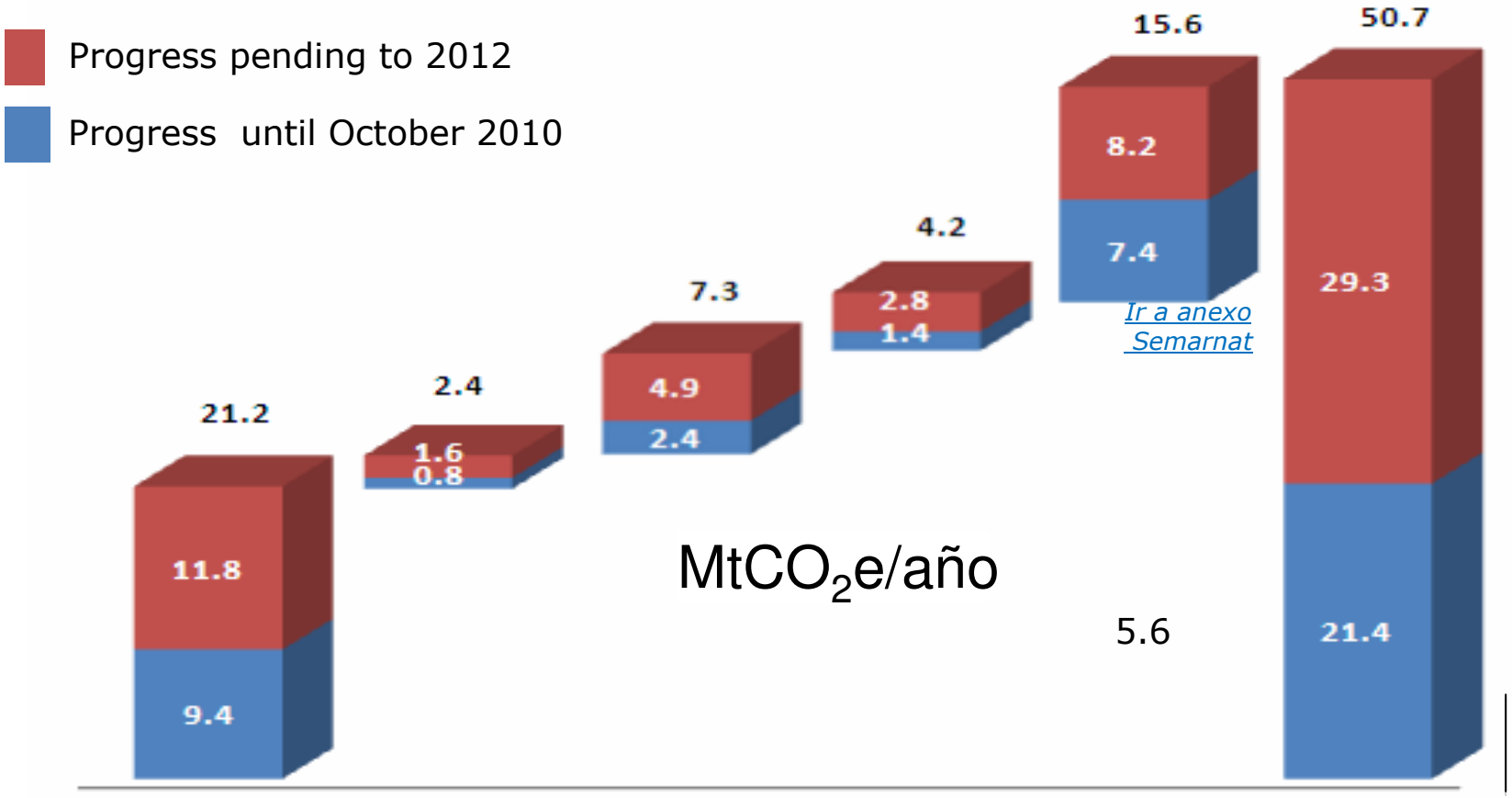
- 21.4 $MtCO_2e$/year
- 42.3% of the 2012 total mitigation goal (51 $MtCO_2e$/year).
- 71.3% of the 2010 mitigation goal (30 $MtCO_2e$/year).



Progress by Sector Until October 2010



Progress by Sector



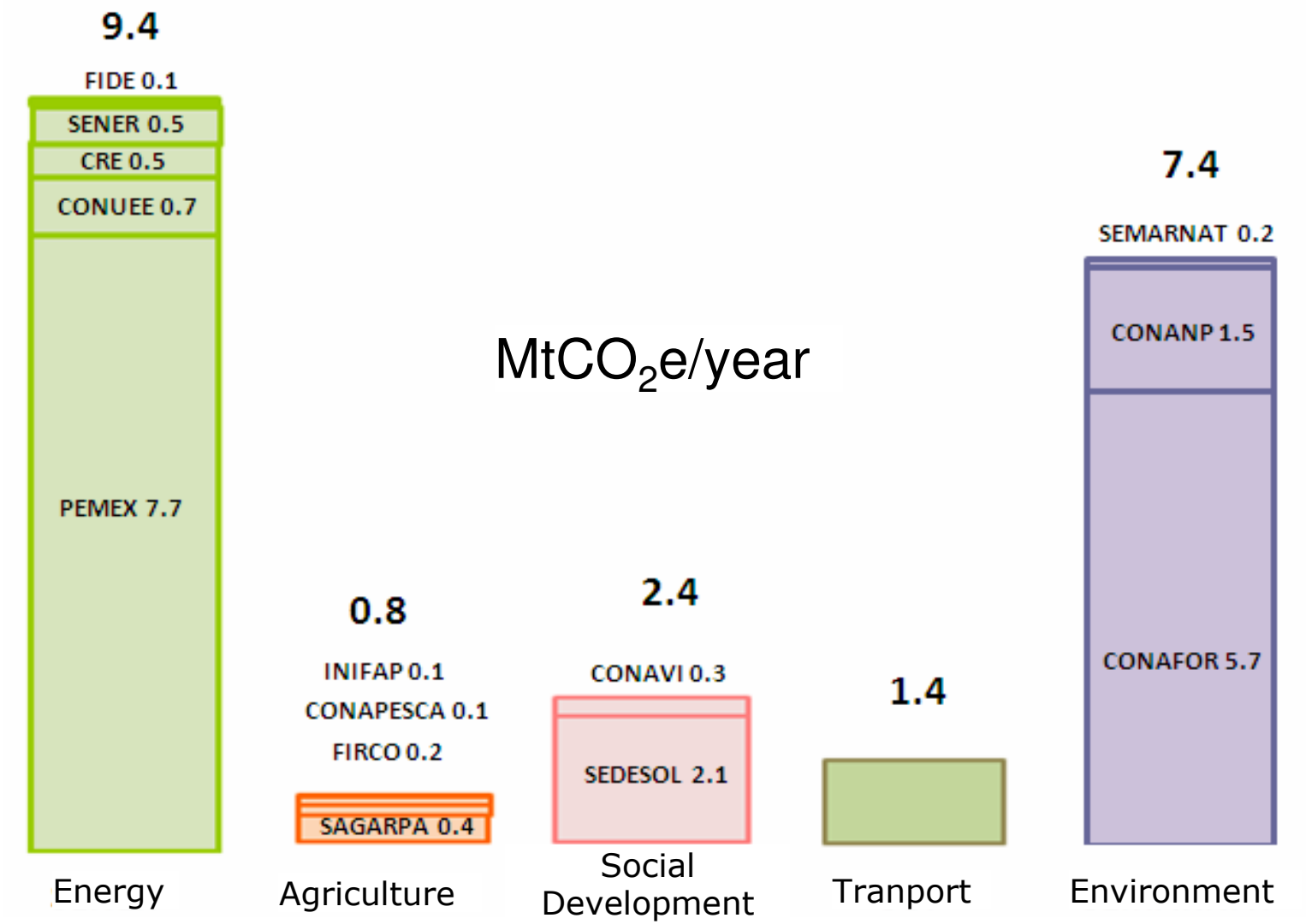
[Ir a anexo Semarnat]

Progress	44.3%	33.3%	32.9%	33.3%	47.4%	42.2%

DGCCP: Direction General for Climate Change Policy. Semarnat

Vivir Mejor

Progress by Subsector



Supportive and administrative actions

- Supportive actions
  - Buildings codes: Promotion of adoption and enforcement; pilot with a state
  - Capacity Building
  - Marketing campaign
  - Linking urban planning aspects with “Ésta es tu casa” and Green mortgage requirements
  - Institutional design

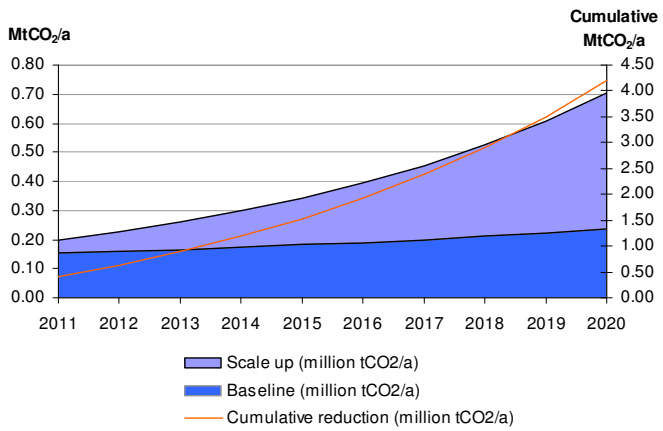
SEMARNAT

SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

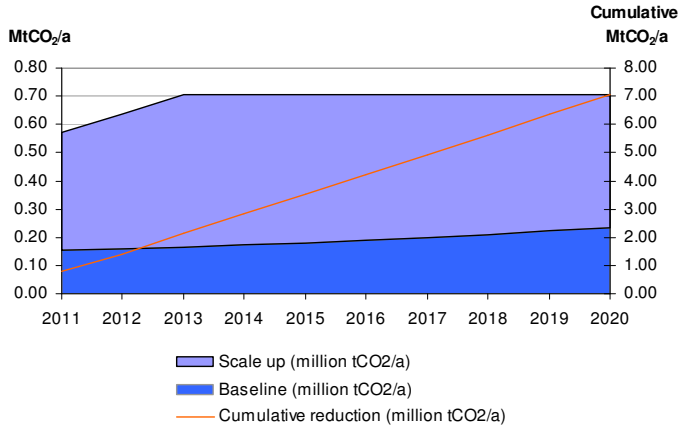
Comparison of ER to the baseline under each scenario

SEMARNAT

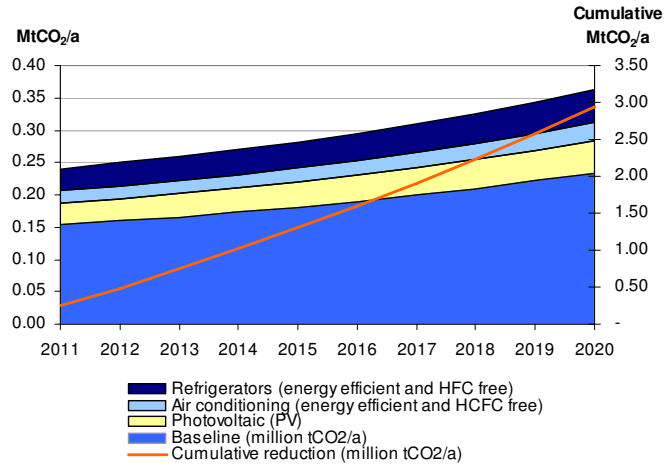
Scenario 1 - increased penetration 100% saturation rate by 2020



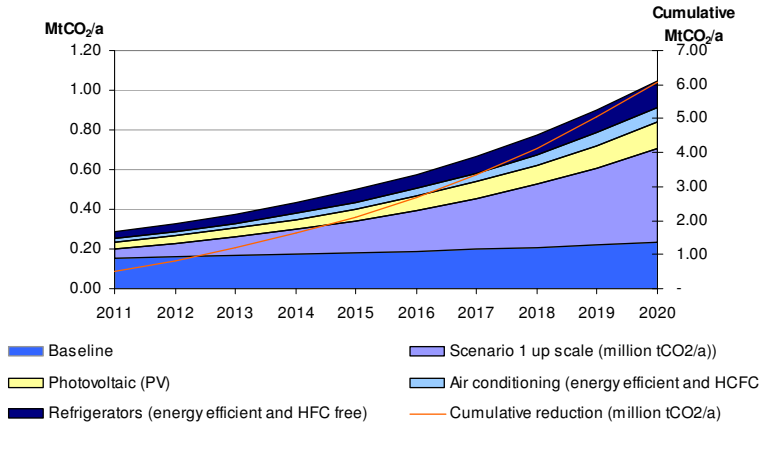
Scenario 2 - increased penetration 100% saturation rate by 2013



Scenario 3 - Technology up scaling



Scenario 4 - Technology up scaling and increased penetration (100% saturation 2020)

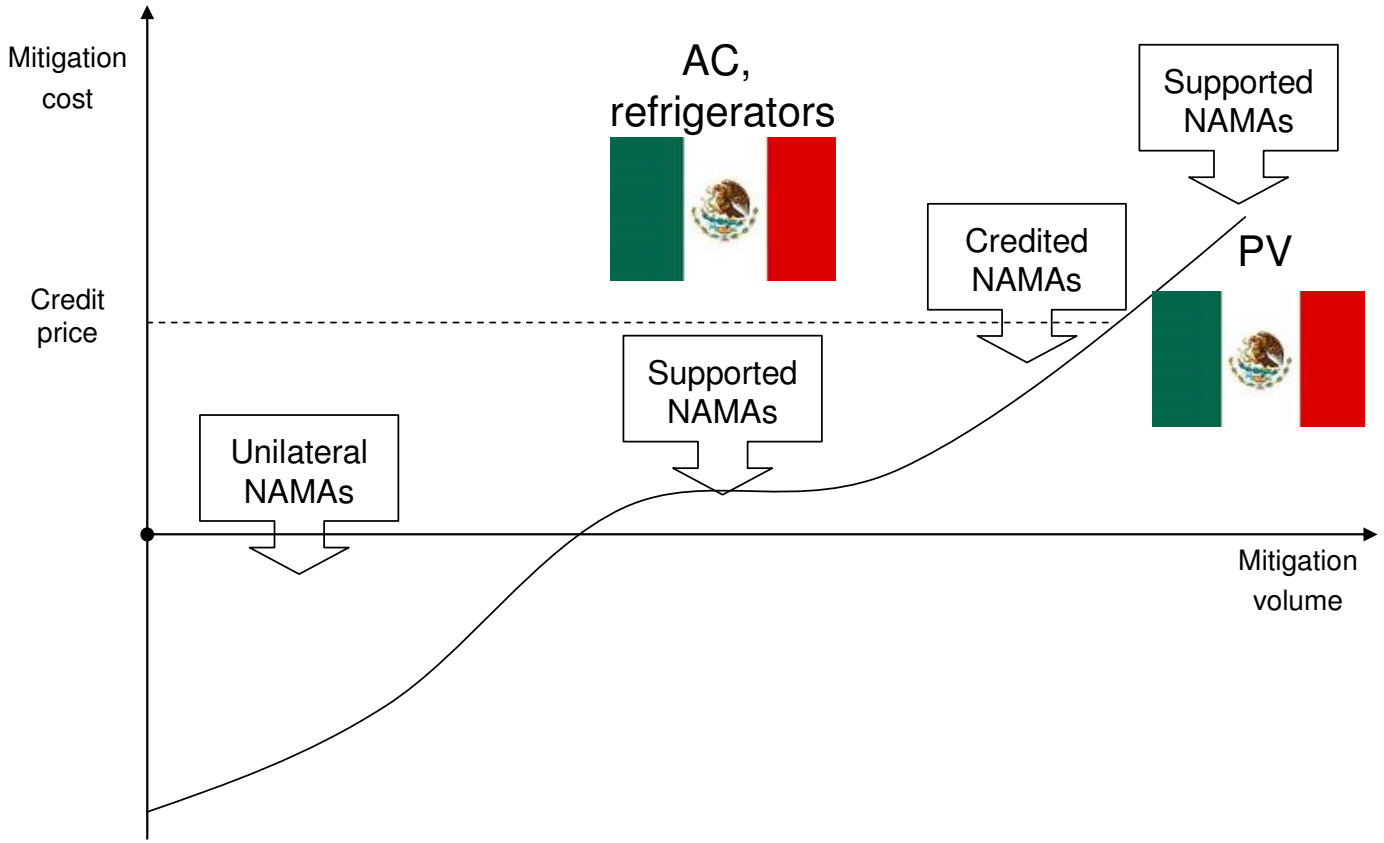


Vivir Mejor

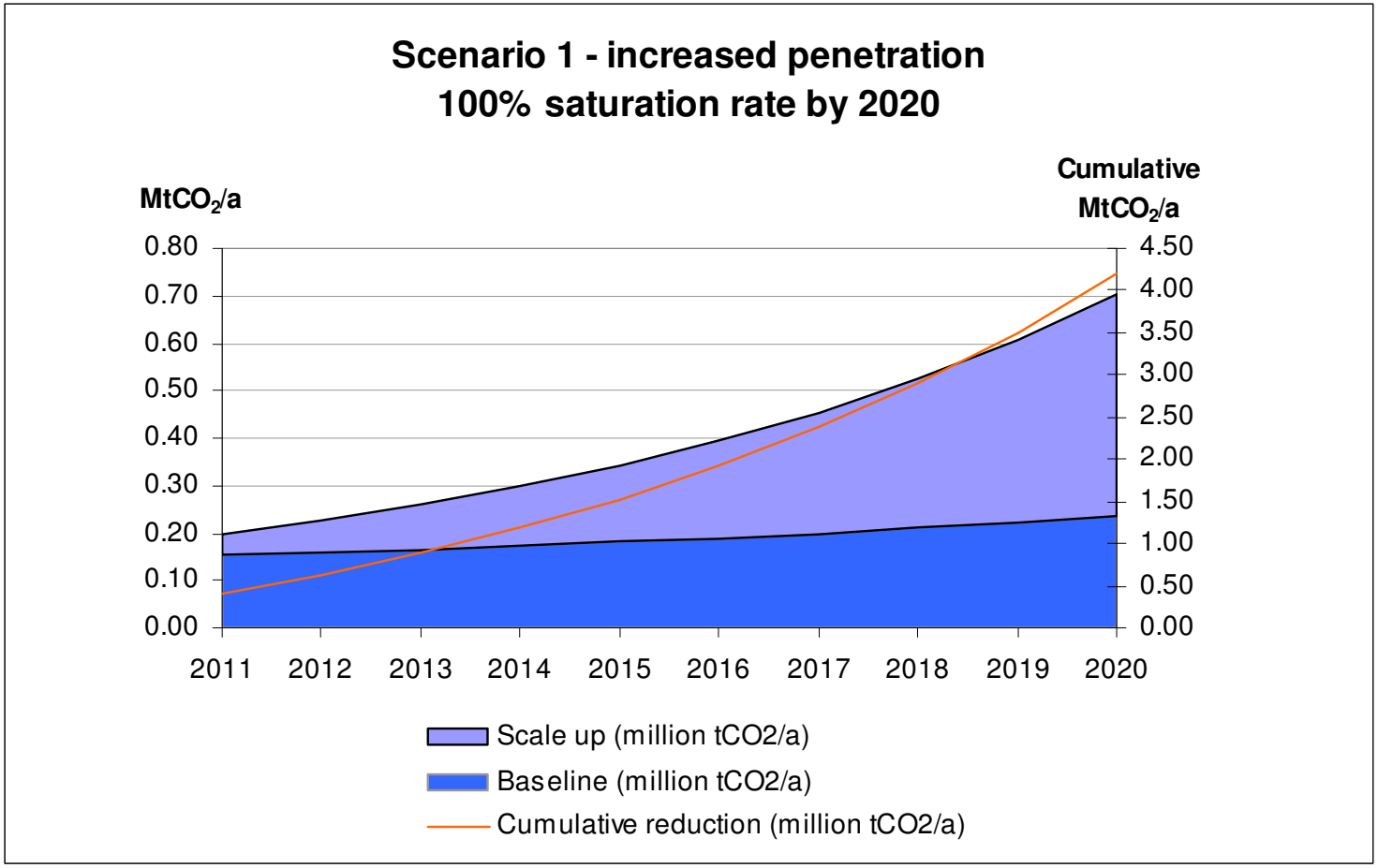
Uncertainties of ER potential

- In how far the estimated emission reductions associated with the different possible scenarios for actions will materialise under a supported NAMA will depend on
  - (i) the future detailed international rules for baseline setting under such frameworks
  - (ii) the quality of argumentation that Mexico can provide on why certain technology standards should or should not be part of the baseline, and
  - (iii) the willingness of donors to finance the more expensive components of technology-scale up such as PV
- The determination of the precise benchmark level for the supported NAMA and crediting will require further research on the status of the energy efficiency level of Mexican new houses

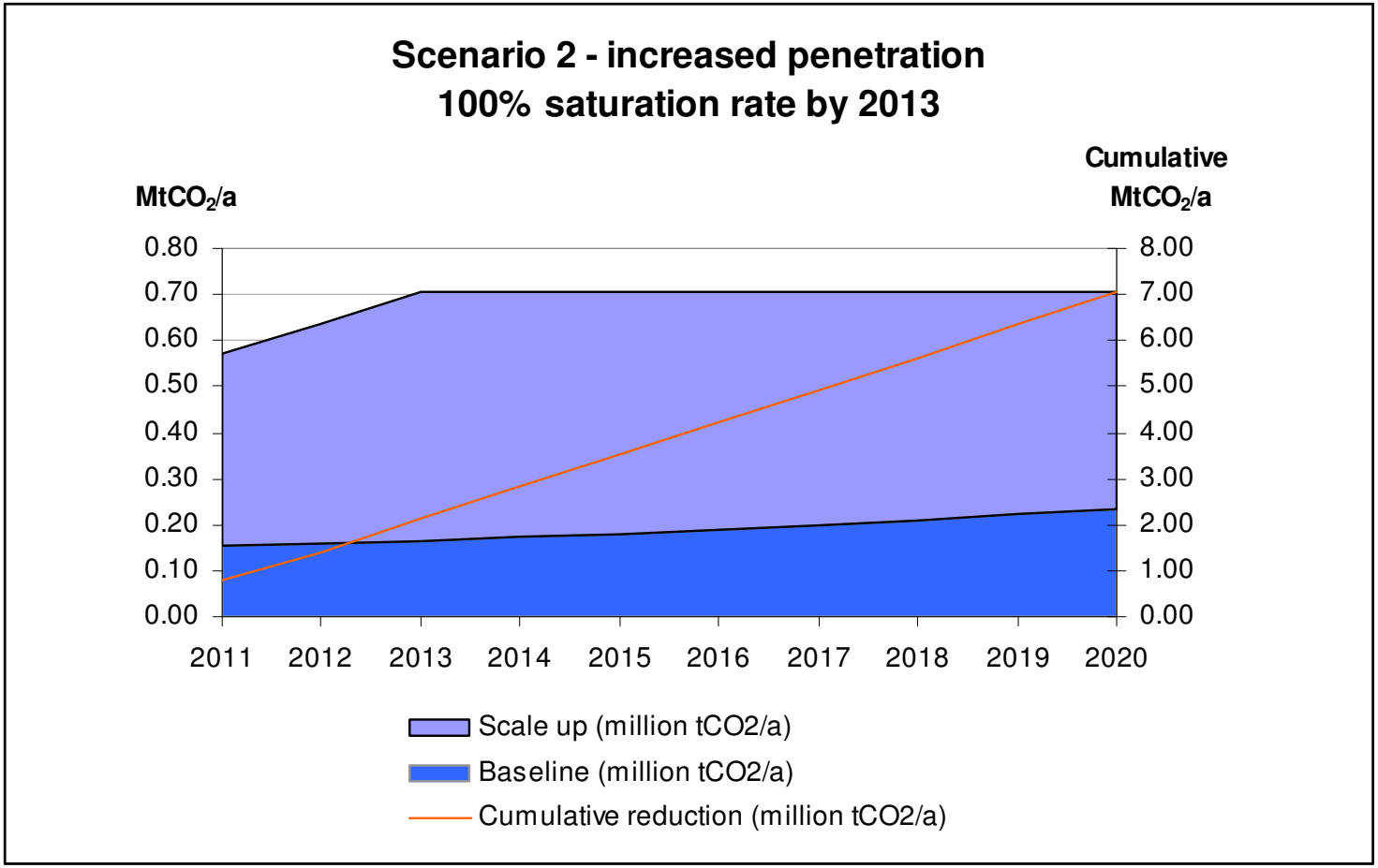
Marginal cost curve and potential elements of NAMA in the Mexican building sector



Estimated ER potential under Scenario 1 - 100% saturation rate by 2020



Estimated ER potential under Scenario 2 - 100% saturation rate by 2013

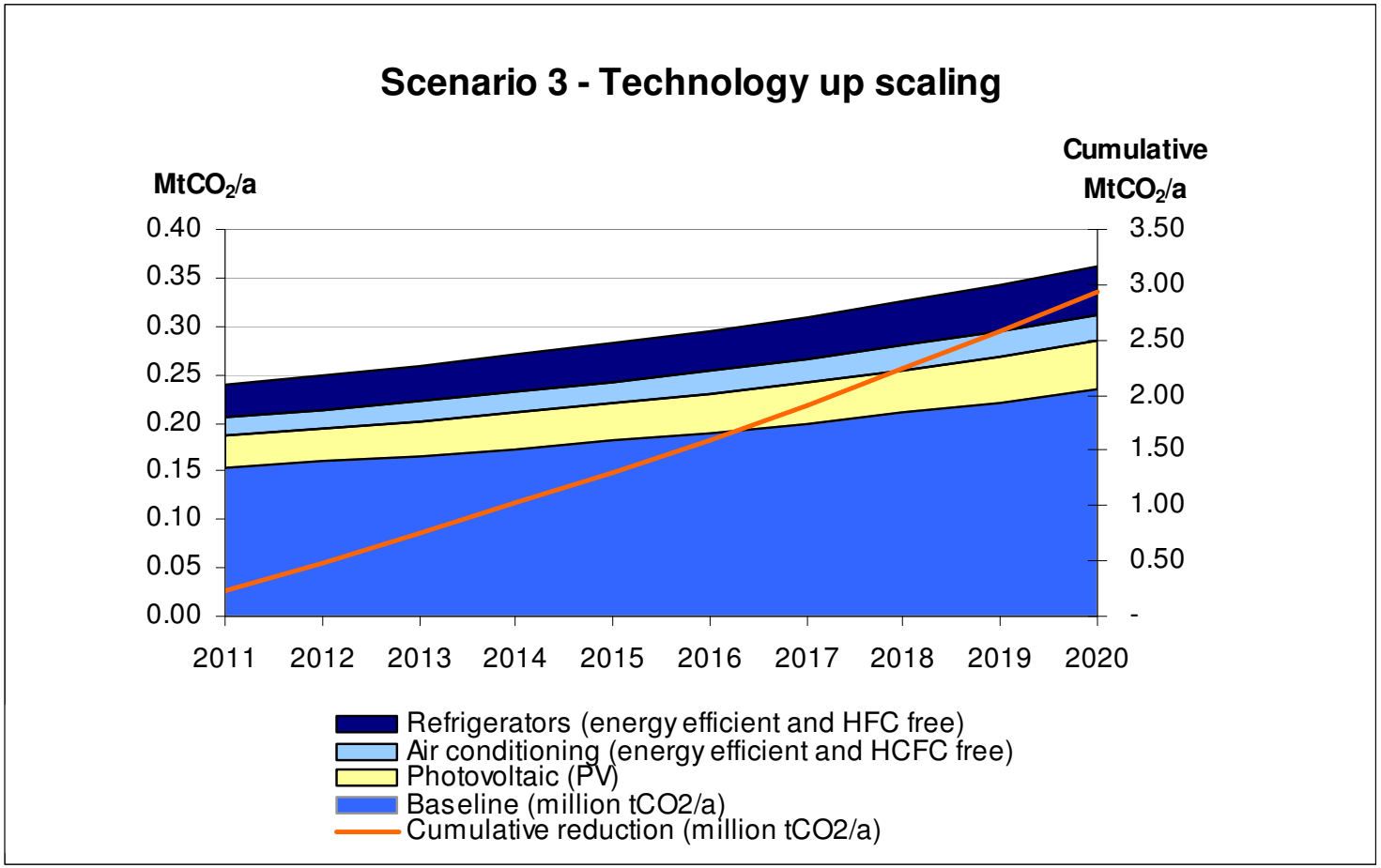


SEMARNAT

SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

Estimated ER potential under Scenario 3 - Technology up-scaling

SEMARNAT



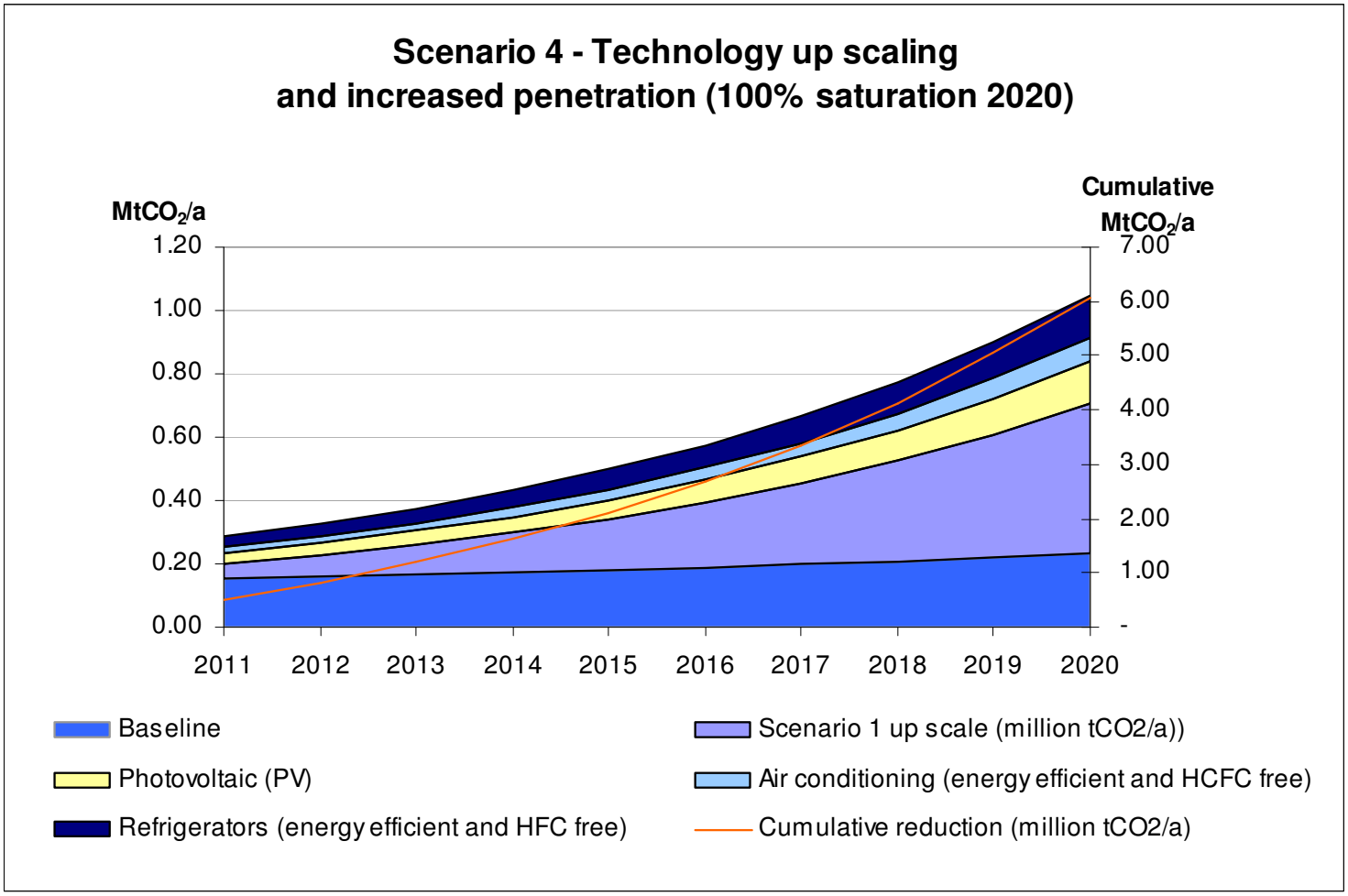
Vivir Mejor

SEMARNAT

SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

Estimated ER potential under Scenario 4 - Technology up-scaling under 100% saturation by 2020

SEMARNAT



Vivir Mejor

SEMARNAT

SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

Key data requirements for the Mexican NAMA

SEMARNAT

Data to monitor	Type of monitoring
Electricity consumption	Direct and continuous metering of electricity consumption (including generation from PV). If available, utility billing records can be used.
Emission factor of the grid electricity	As per CDM Tool to calculate emission factor for an electricity system[1], or use published data.
Transmission & distribution loss	Data from utility or an official government body.
Fuel consumption	Direct and continuous metering of fuel consumption. If available, utility billing records or fuel purchase invoices can be used.
Net calorific value of the fuel	Values provided by the fuel supplier in invoices, own measurement, or regional or national default value.
CO_2 emission factor of the fuel	Values provided by the fuel supplier in invoices, own measurement, or regional or national default value.
Refrigerant leakage from refrigerators and air-conditioners	IPCC default value or manufacturer specifications.
Gross floor area of a building unit	Building plan, or onsite measurement.

[1] http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v2.pdf.

Vivir Mejor

SEMARNAT

SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

Possible MRV indicators for supportive actions under the NAMA

SEMARNAT

Supportive Action	MRV Indicator
1: Institutional set-up and NAMA administration	- Development of data collection system for MRV (database) - Establishment of inspection and supervision system of new houses built under the NAMA - Survey of house of realised GHG emission reductions (annually)
2: Enforcement of mandatory building codes	- Number of federal states adapting and enforcing mandatory building codes - Performance of the Verification Units (VUs)
3: Transformation of Green Mortgage programme into a country-wide holistic urban planning and building code framework	- Number of developments and updates of norms and standards for enhanced building codes by CONAVI (including urban planning process integration in building codes/programme requirements) - Number of supportive dialogues towards a policy for sustainable housing for Mexico
4: Capacity building	- Number of certified architects, engineers, constructors and installers for sustainable housing design and technology - University Curriculum: Number of professors, Number of studies and reports, Number of graduated students (Master and PhD) - Development of technology database for the housing sector and updates
5: Marketing & Advertisement	- Implementation and operation of webpage - Number of TV spots, radio spots and newspaper advertisements

Vivir Mejor

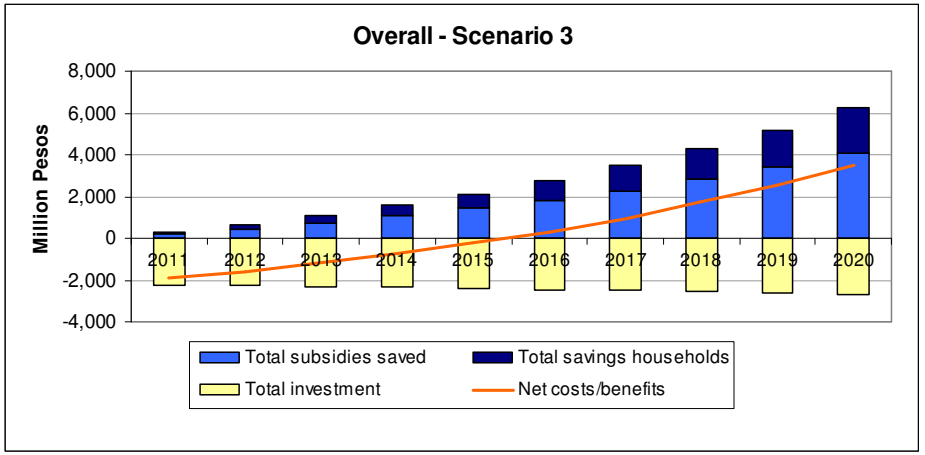
SEMARNAT

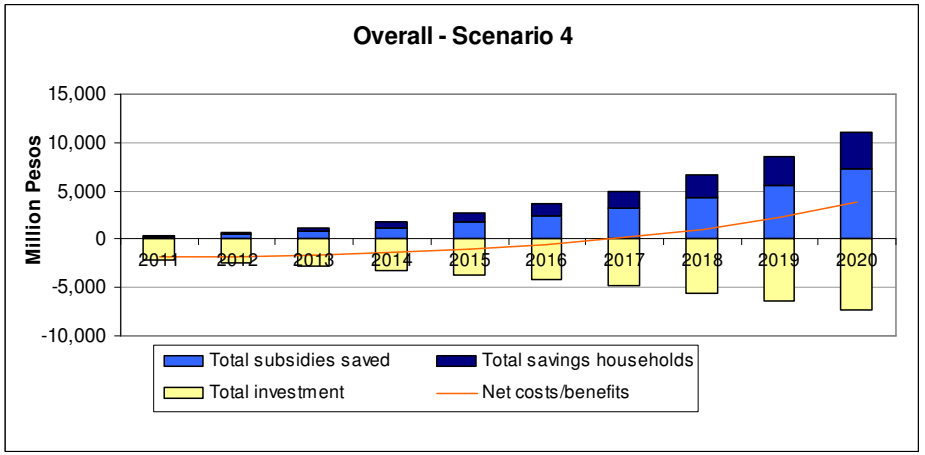
SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

Associated monetary benefits and investments estimations under Scenario 3 & 4

SEMARNAT

- Long term national economy dimension related to investments
- Monetary benefits on two levels only: (i) the house owner (ii) and the Mexican government (saved subsidies)
- Current price/cost ratio for household electricity tariffs in Mexico approximately 0.41
- Monetary benefits under the NAMA concept could be shared differently and used to finance the investments (should be discussed under the detailed NAMA design)





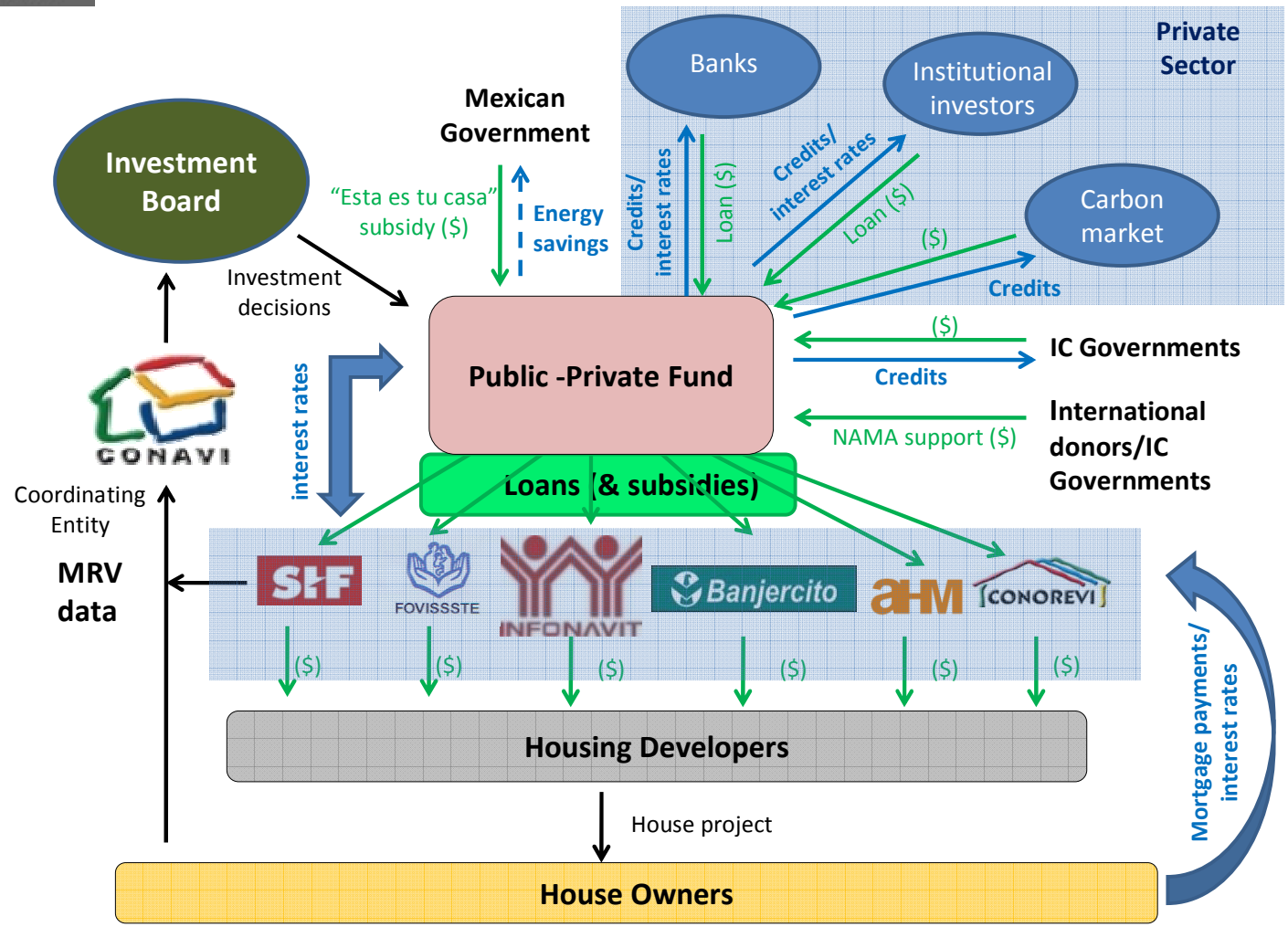
Vivir Mejor

SEMARNAT

SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

Overview of the proposed NAMA fund

SEMARNAT



Vivir Mejor