

*In the Name of God*



# Energy Conservation in Iran

## Current Situation, Policies and Programs

### The Oil & Gas Seminar

(Organized by Embassy of Italy in Tehran)



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# An Overview of Energy Sector in Iran



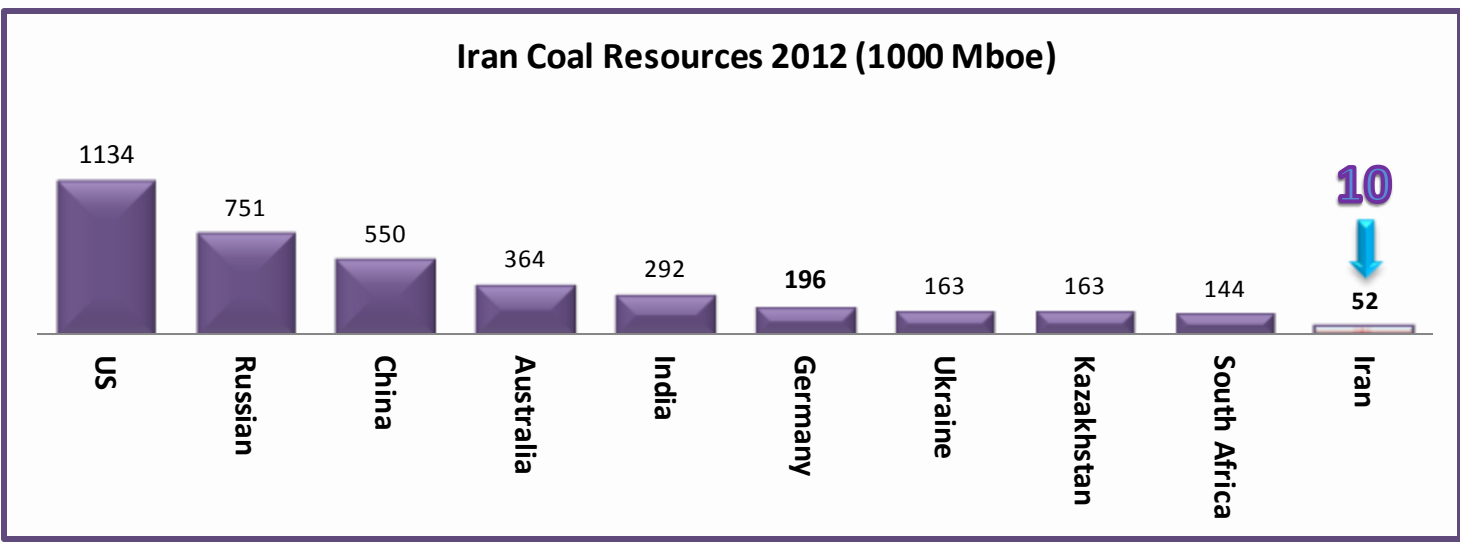
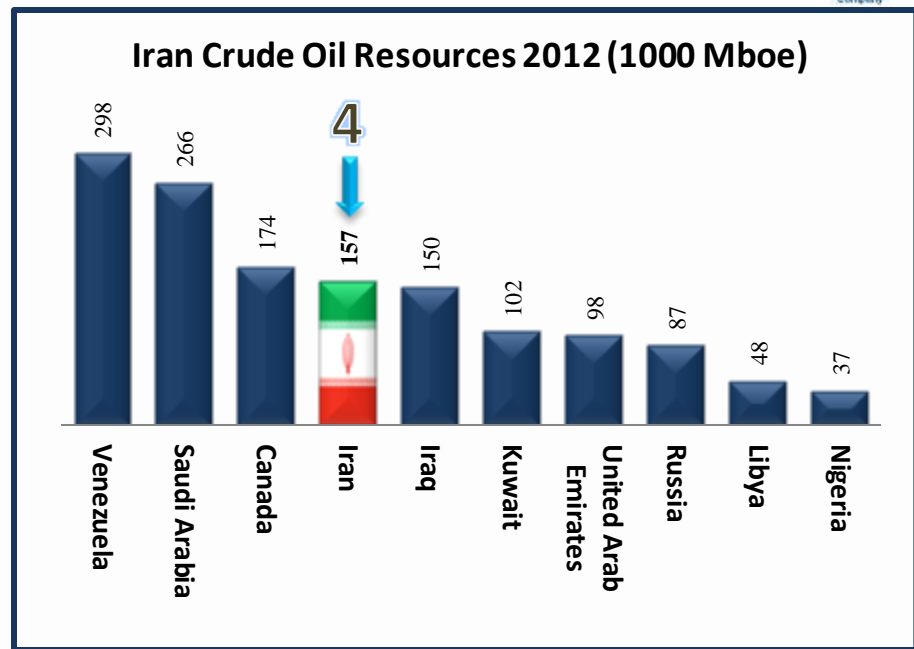
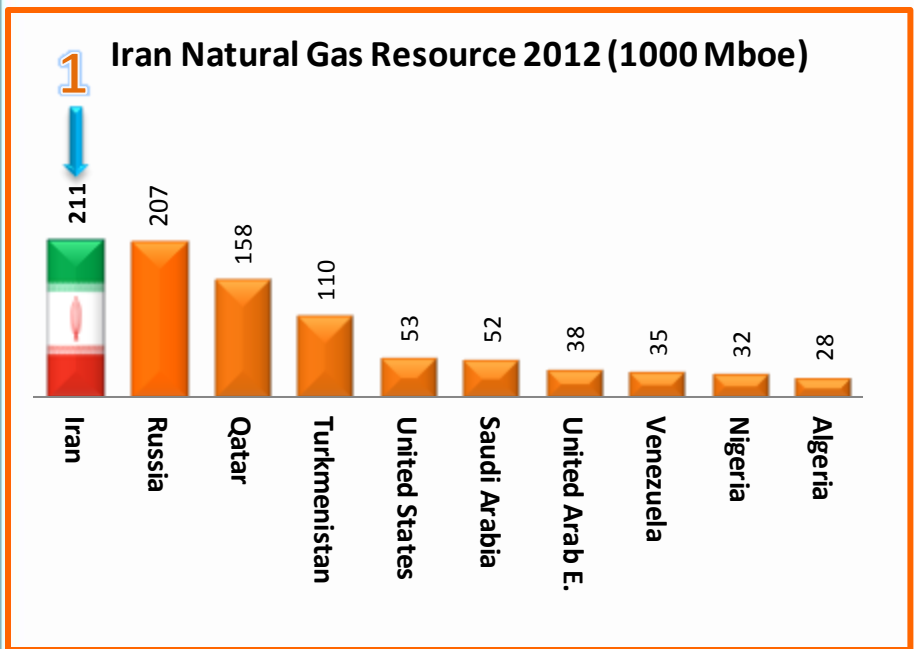
<b>Population</b> (million)	<b>75.4</b>
<b>GDP</b> (billion 2000 USD)	<b>250</b>
<b>GDP (PPP)</b> (billion 2000 USD)	<b>1074</b>
<b>Energy Production</b> (Mtoe)	<b>354</b>
<b>Exports</b> (Mtoe)	<b>139</b>
<b>TPES</b> (Mtoe)	<b>212</b>
<b>Electricity Consumption</b> (TWh)	<b>200</b>
<b>CO2 Emissions</b> (Mt of CO2)	<b>525</b>

**Region Population(2013): 483 (Million)**



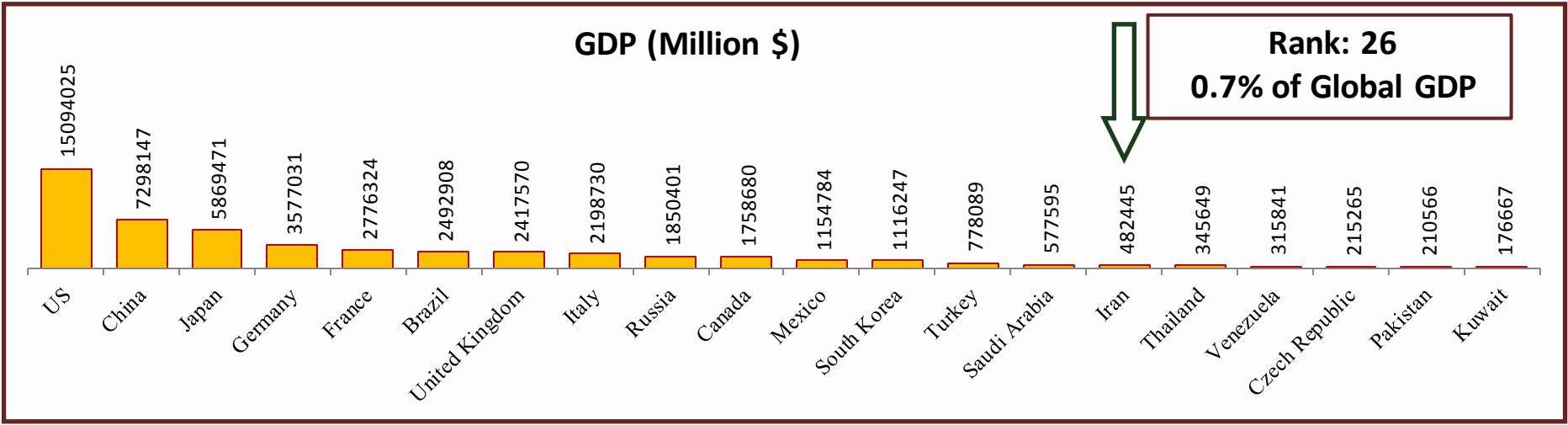


# Fossil Energy Resources

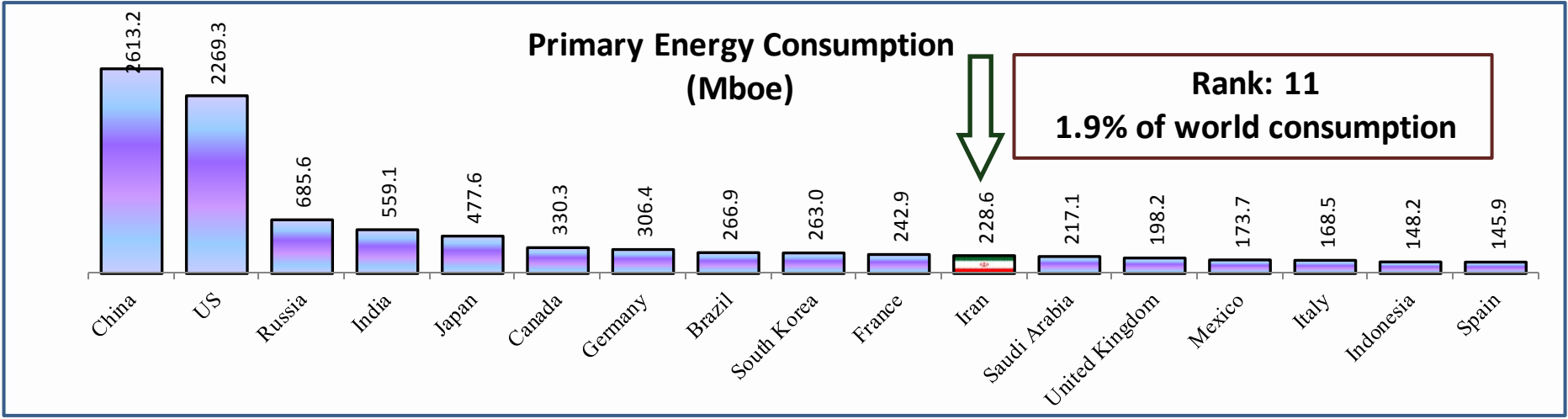




# Position of Iran in Global GDP and TPEC



Source: International Monetary Fund



Source: BP Statistical Review of World Energy .June 2012





# Quantitative Goal

50%  
Energy Intensity  
Reduction  
TO 2021

**50%** ENERGY  
INTENSITY REDUCTION  
From 2010 to 2021

## General Policies of Consumption Reform

**Energy saving by implementing a balanced set of priced and non-priced measures for continual reduction of ENERGY INTENSITY to two-third at the end of 2016 and to half at the end of 2021 with comparison to base year (2010).**

*Some of other important & supporting legislation*

*Energy consumption reform legislation (act No.1770) 2012*

*Third to fifth national economic, social and cultural development Plan 2001 -2015*

*Rationalization of subsidies law 2012*





# Total Energy Saving Potential

50%  
Energy Intensity  
Reduction  
TO 2021

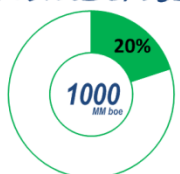
# 5000

MM boe

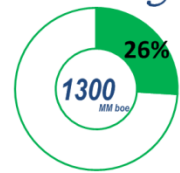
## Energy Saving Potential

Cumulative from 2015 to 2021

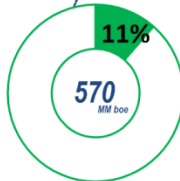
Industries



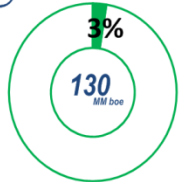
Buildings



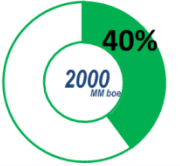
Transportation



Agricultural



Transformation & Distribution



**1800** Emission Reduction  
MM ton CO<sub>2</sub> equivalent



**192** Total Investment  
Billion USD

**60** Initial Investment  
Billion USD

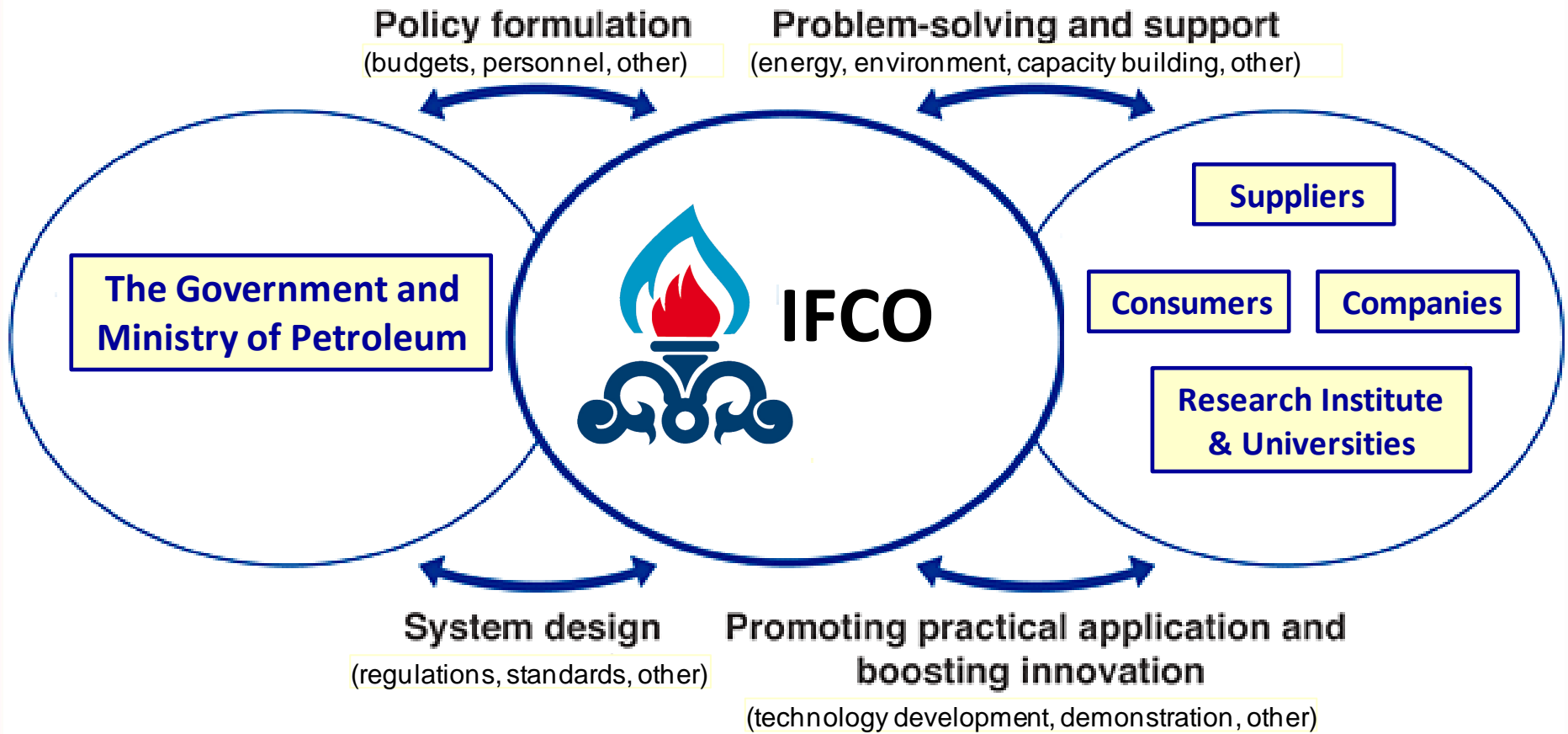






# IRANIAN FUEL CONSERVATION COMPANY (IFCO)

## Executive Responsible for Rationalizing Use of Energy





# Energy Savings from IFCO's Implemented Projects



**Annual Energy Saving: 39.3 MBOE**  
**Annual Energy Switching: 50.5 MBOE**

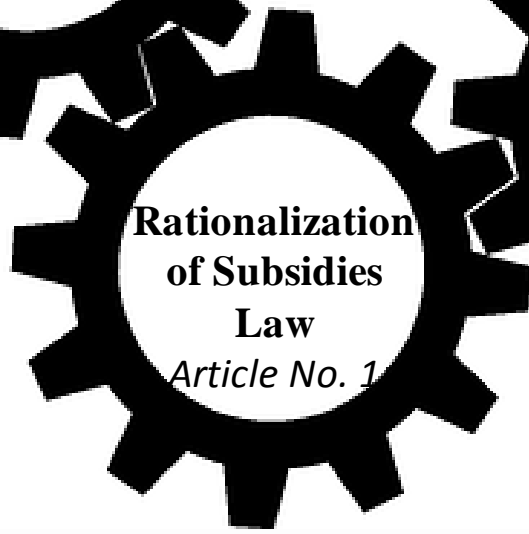






# Legislation

(Price-based and Non-Price based approach)





# IMPLEMENTATION MODELS

- **Capacity Building**
- **Mandatory Energy Efficiency Standards**
- **Soft Loans & Subsidies**
- **Energy Performance Contracts**
- **Buy Back**



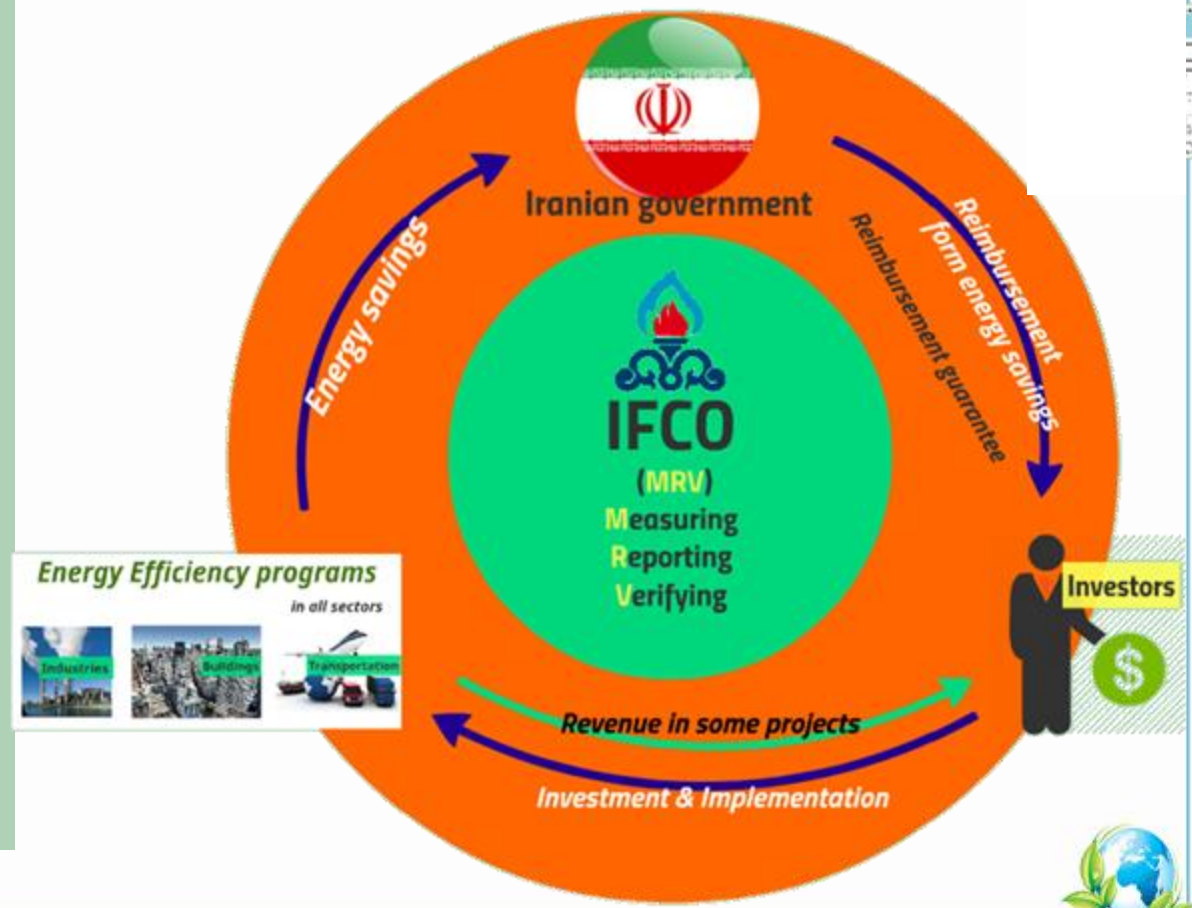


# IMPLEMENTATION MODELS

these programs are structured based on EPC model and reimbursement to investors prior to the actual energy savings resulting from the implementation of the programs. In fact, it is very similar to buy-back contracts in upstream field development projects.

In this model the investors get reimbursement guarantee from MOP (ministry of petroleum) or other affiliated companies like NIOC (National Iranian Oil Company) and finance and implement the energy efficiency programs. When IFCO (Iranian Fuel Conservation Company, a NIOC company ) verifies the avoided energy afterward, the value of saving will be paid to the investors.

## EPC model Energy Performance Contract





# Energy Conservation Plans

1. Improving Energy Efficiency of the Existing Local and Central Heating Systems
2. Renewal of city taxi fleets by retirement of 140000 old petrol taxis and supply of CNG taxis
3. Renewal of city bus fleets by retirement of 17000 old diesel buses and supply of CNG city buses
4. Electrification of Agricultural Water Pumps
5. Renovate heavy vehicle fleet (passenger and freight)
6. Development of Railway Transportation System
7. Projects to replace liquid petroleum products with NG





1

# Improving Energy Efficiency of the Existing Local and Central Heating Systems



Plan Overview:

The amount of work:

500 thousand units residential buildings

100 thousand units commercial buildings

Saving: 25 million cubic meters of natural gas per day in winter.

The Annual benefits:

about 5 billion cubic meters of natural gas , especially in the winter, or 29 million barrels of crude oil and reduction of about 9 million tons of GHGs annually.

Plan Spec	Amount
Investment	\$ 2 billion
Reimbursement	\$ 2 billion
Payment Period	40 months
Savings (\$) in the Life Cycle	\$ 6 Billion
Savings (NG) in the Life Cycle	35 trillion TCM
GHG Reduction	67 MMTCE





2

# Renewal of city taxi fleets by retirement of 140000 old petrol taxis and supply of CNG taxis



Plan Overview:

The amount of work:

Substitution of **140000 new CNG taxis** including 60000 van taxis and 80000 sedan taxis.

Benefits:

Cumulative avoided/substituted energy carriers of **620 million liters of petrol** and reduction of **100 thousand tons of GHGs** per year

Plan Spec	Amount
Reimbursement	\$ 635 million
Payment Period	5-7 years
Savings (\$) in the Life Cycle	\$ 1.1 billion
Savings (petrol) in the Life Cycle	5.9 billion liters
GHG Reduction	2.2 MMTCE







# 3

## Renewal of city bus fleets by retirement of 17000 old diesel buses and supply of CNG city buses



Plan Overview:

The amount of work:

Substitution of 17000 new CNG buses

Benefits:

Cumulative avoided/substituted energy carriers of **849 million liters of gasoil** and reduction of 500 thousand tons of GHGs per year.

Plan Spec	Amount
Reimbursement	\$ 1795 million
Payment Period	5 years
Savings (\$) in the Life Cycle	\$ 3.5 billion
Savings (gasoil) in the Life Cycle	8.6 billion liters
GHG Reduction	6.4 MMTCE





# 4 Electrification of Agricultural Water Pumps



### Plan Overview:

### The amount of work:

replacement of **100 thousand** of existing diesel engines with electric motor and floating pumps in the agricultural sector .

### Benefits:

Cumulative **avoided/substituted** energy carriers of **990 million liters of gasoil**, with the same amount of gas to generate electricity per year.

Plan Spec	Amount
Reimbursement	\$ 1650 million
Payment Period	5 years
Savings (\$) in the Life Cycle	\$ 3 billion
Savings (gasoil) in the Life Cycle	7.1 billion liters
GHG Reduction	18 MMTCE





# 5 Renovate heavy vehicle fleet (passenger and freight)



### Plan Overview:

### The amount of work:

Replacement of **65,000** of existing (**over 35 years**) diesel Heavy Trucks by new energy-efficient trucks.

### Benefits:

Cumulative **saving of 349 million liters of gasoil** and reduction of **900 thousand tons of GHGs** per year.

Plan Spec	Amount
Reimbursement	\$ 2.7 billion
Payment Period	5 years
Savings (\$) in the Life Cycle	\$ 12billion
Savings (gasoil) in the Life Cycle	34 billion liters
GHG Reduction	93MMTCE





# 6 Development of Railway Transportation System



Plan Overview:

The amount of work:

Railway development and increasing:

cargo capacity **from 21.7 to 75.8 bn** tones-km

passenger transport **from 17.4 to 34.2 bn** people-km

Benefits:

Cumulative **saving of 403 million liters of gasoil and reduction of 1 million tons of GHGs** per year.

Plan Spec	Amount
Reimbursement	\$ 7531 million
Payment Period	10years
Savings (\$) in the Life Cycle	\$ 144 billion
Savings (gasoil) in the Life Cycle	392 billion liters
GHG Reduction	1000 MMTCE





# 7 Projects to replace liquid petroleum products with NG



Plan Overview:

The amount of work:

- 1- Gas supplies to **Sistan - Baluchistan** province **890 km gas transmission lines** (16-56 inches diameters) for about 300 thousands of urban and rural households
- 2- Gas supplies to the remaining **small towns ,villages , workshops and small industries** 2363 thousands of urban and rural families through **shipping compressed gas or other methods**

Benefits:

Cumulative **saving of 10.3 billion liters of oil products** and **reduction of 700 thousands tons of GHGs** per year

Plan Spec	Amount
Reimbursement	\$ 6292 million
Payment Period	6 years
Savings (\$) in the Life Cycle	\$ 107 billion
Savings (gasoil) in the Life Cycle	41.3 (gasoil/fuel oil) + 134.1 (kerosene/lpg) bn liters
GHG Reduction	25.8 MMTCE





# International Collaboration Tools and Areas

## Tools:

regulatory

Joint Venture

Partnership

Contracts

## Areas:

Implementation

Capacity Building

Technical Tours & Training

Technology Transfer

R&D Programs







# welcome

for  
implementation of these approved programs  
or any new proposal



مرکز اطلاع رسانی شرکت بهینه سازی  
به پرسش های شما پاسخ میدهد.

۰۲۱-۸۱۹۱۱

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