イラン・イスラム共和国
政府系ビルのESCO導入に係る
パイロット事業実施プロジェクト
詳細計画策定調査報告書

平成25年3月
(2013年)

独立行政法人国際協力機構
産業開発・公共政策部

産公
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目　　次

イラン・イスラム共和国地図

出所：CIA The World Factbook

写　　真

エネルギー省（MOE）、イラン省エネルギー機構（SABA/IEEO）、
イラン省燃料消費最適化機構（IFCO）との打合せ

テヘランの街並み

略　語　表

略　語	英　文	和　文
BEMS	Building Energy Management System	ビルエネルギー管理システム
CHP	Combined Heat and Power	熱電併給システム
EE&C	Energy Efficiency and Conservation	エネルギー効率化・省エネルギー
EOJ	Embassy of Japan in Iran	在イラン日本国大使館
ESCO	Energy Service Company	ESCO
IFCO	Iranian Fuel Conservation Organization（MOP）	イラン省燃料消費最適化機構（石油省）
IRESCO	Iran ESCO Association	イラン ESCO 協会
JICA	Japan International Cooperation Agency	国際協力機構
MOE	Ministry of Energy	エネルギー省
MOEF	Ministry of Economy and Finance	経済財務省
MOP	Ministry of Petroleum	石油省
MRUD	Ministry of Road and Urban Development	道路都市開発省
NDF	National Development Fund	国家開発基金
NIOC	National Iranian Oil Company	イラン国営石油会社
OIPEEE	Office for the Improvement of Productivity and Economy of Electricity and Energy（MOE）	電力エネルギー生産性経済局（エネルギー省）
SABA/IEEO	Iran Energy Efficiency Organization	イラン省エネルギー機構（略称 SABA はペルシャ語表記）
SPAC	Presidential Deputy of Strategic Planning and Supervision	大統領府戦略計画監督庁

第１章　調査の概要

１－１　調査の背景

イラン・イスラム共和国（以下、「イラン」）は世界全体の石油埋蔵量の 10.9％を保有し、日産 400 万バレルを有する世界有数の産油国である。他方、イラン国内のエネルギー総消費量もエネルギー総生産量の 44％に達しており、経済成長を牽引する石油輸出量確保のために自国内でのエネルギーの効率的利用が課題となっている。セクター別のエネルギー消費割合は、住宅部門が 33％と最大であり、運輸部門 24％、産業部門 24％、業務部門が 8％と続いているが、特に、業務部門・住宅部門に当たる一般の建築物でのエネルギー消費量は絶えず伸びており、国全体のエネルギー総供給量の 40％程度までのぼっているため、建物における省エネルギーの推進は、イランエネルギー省（Ministry of Energy：MOE）の喫急の課題となっている。

JICA はイランにおいて開発計画調査型技術協力「ビルの省エネルギー管理と関連法令整備のための調査」（2010 年 5 月～ 2011 年 11 月）を実施し、ビル分野の省エネルギー推進のためのロードマップ及びアクションプランの策定に係る支援を行った。同調査のなかで、既存ビルの省エネルギーの推進には、ESCO（Energy Service Company）事業者の活用が有望であることが特定された。また、補助金合理化法[1]（2010 年 12 月制定）及びエネルギー消費パターン改革法（2011 年 3 月制定）が相次いで制定され、省エネルギーを推進するための上位政策が整備されつつあることが確認されている。

このような状況下で、イラン MOE はわが国に対して、政府系ビルを対象とした ESCO 推進事業に係る能力強化の支援を要請した。

１－２　調査の目的

本調査は、イランの ESCO 協会の設立状況、エネルギー補助金撤廃の進捗状況、政府基金、財政支援制度などを含めた現状確認を行うと同時に、関係者との協議を行い、技術協力プロジェクトの討議議事録（Record of Discussions：R/D）について合意を得ることを目的とする。

１－３　調査団構成

担当分野	氏　名	所　属
総　括	住吉　央	JICA 産業開発・公共政策部資源・エネルギーグループ 資源・エネルギー第二課　課長
協力企画	山口　俊太	JICA 産業開発・公共政策部資源・エネルギーグループ 資源・エネルギー第一課　特別嘱託
ビル省エネルギー技術	森　務	日本工営株式会社 電力事業本部プラント事業部 エネルギーソリューション部　課長

[1] D. Guillaume et al. (2011) IMF Working Paper, Iran–The Chronicles of the Subsidy Reform, http://www.imf.org/external/pubs/ft/wp/2011/wp11167.pdf

１－４　調査日程

2013 年 2 月 14 日（木）～ 2 月 24 日（日）

No	Date	Day	Activities			Accommodation
			Mr. Hiroshi Sumiyoshi	Mr. Shunta Yamaguchi	Mr. Tsutomu Mori	
1	Feb 14th	Thu		Move to Iran Narita 22:00 - Dubai 05:00 (+1) (EK319)		Tehran
2	Feb 15th	Fri	Move to Iran Narita 22:00 - Dubai 05:00 (+1) (EK319)	Dubai 07:50 - Tehran 09:35 (EK971)		In Flight / Tehran
3	Feb 16th	Sat	Dubai 07:50 - Tehran 09:35 (EK971)			Tehran
			Airport Pick-up for Hotel	11:00-12:50 Meeting with JICA FA Mr. Kato		
			13:30-15:00 Meeting with MOE OIPEEE (R/D Discussion) with Shafiezadeh DG, Effatnejad DDG, Shirazi Expert			
			15:30-16:30 Meeting with JICA Iran Office with Takeuchi CR			
4	Feb 17th	Sun	09:00-12:00 Meeting with MOE, SABA, IFCO with Shafiezadeh DG, Effatnejad DDG, Shirazi Expert etc.			Tehran
			15:00-17:30 Internal Meeting and Documentation			
5	Feb 18th	Mon	09:30-11:00 Meeting with MOE OIPEEE (R/D, PO Discussion) with Shafiezadeh DG, Effatnejad DDG, Shirazi Expert			Tehran
			14:00-16:00 Meeting with MOE OIPEEE, MRUD, SABA, ESCO Association and related parties			
6	Feb 19th	Tue	10:00-12:30 Meeting with MOE OIPEEE (R/D, PO Discussion) with Shirazi Expert			In Flight / Tehran
			14:00-17:00 Meeting with MOE OIPEEE (R/D, PO Discussion) with Shafiezadeh DG, Effatnejad DDG, Shirazi Expert			
			17:30-18:00 Report to JICA Iran Office with Takeuchi CR			
			Move to Ethiopia			
			Tehran 21:20 - Dubai 23:59 (EK978)			
7	Feb 20th	Wed	Dubai 10:30 - Addis Ababa 13:30 (EK723)	10:00-11:00 Report to EOJ with Suemori 1st Secretary and Fumoto 2nd Secretary		Addis Ababa / Tehran / In Flight
				11:30-15:00 Meeting with JICA Iran Office with Kato FA		
					Move to Japan	
					21:20 - Dubai (23:59) (EK978)	
8	Feb 21st	Thu		Documentation	Dubai 02:55 - Tokyo 17:20 (EK318)	Addis Ababa / Tehran
9	Feb 22nd	Fri	Move to Japan	Move to Tabriz	Dubai 02:55 - Tokyo 17:20 (EK318)	Addis Ababa / Tehran
			Addis Ababa 16:15 - Dubai 21:20 (EK724)	Tehran 21:10 - Tabriz 22 :40 (IR445)		
				accompanied by Shirazi Expert (MOE)		
				& Mr. Ramin (JICA Iran Office)		

10	Feb 23rd	Sat	Dubai 02:55 - Tokyo 17:20 (EK318)	Meeting with EMTC		Tehran
				Move to Tehran		
				Tabriz 18:05 - Tehran 19:20 (IR342)		
11	Feb 24th	Sun		Move to HCMC Vietnam		HCMC
				Tehran 04:10 - Dubai 06:40 (EK976)		
				Dubai 09:25 - HCMC 18:50 (EK392)		

MOE: Ministry of Energy

OIPEEE: Ofice for the Improvement of Productivity and Economy o f Electricity and Energy

SABA (Persian): Iran Energy Efficiency Organization (IEEO)

IFCO: Iran Fuel Conservation Organization

MRUD: Ministry of Road and Urban Development

１－５　主要面談者

（1）エネルギー省（ Ministry of Energy：MOE）

- Mr. Mohammad Ali Shafiezadeh, General Director, Office for the Improvement of Productivity and Economy of Electricity and Energy, Ministry of Energy（OIPEEE MOE）
- Mr. Reza Effatnejad, Deputy Director General, Office for the Improvement of Productivity and Economy of Electricity and Energy, Ministry of Energy（OIPEEE MOE）
- Mr. Ghasemi, Deputy Director General, Office for the Improvement of Productivity and Economy of Electricity and Energy, Ministry of Energy（OIPEEE MOE）
- Mr. Alireza Shirazi, Expert, Office for the Improvement of Productivity and Economy of Electricity and Energy, Ministry of Energy（OPIEEE MOE）

（2）道路都市開発省（ Ministry of Road and Urban Development：MRUD）

- Ms. Pakravan,（Position N/A）

（3）イラン省エネルギー機構（ Iran Energy Efficiency Organization：SABA/IEEO）

- Mr. Amir Doudabi Nezhad, Manager of Industrial Energy Efficiency Office
- Mr. Tavakkoli, Head of Building Group

（4）イラン省燃料消費最適化機構（ Iranian Fuel Conservation Organization：IFCO）

- Mr. M R Fajrak, Head of Metallic Industries
- Mr. Mirzaei, Head of Conservation in Building Installation

（5）イラン ESCO 協会（Iran ESCO Association：IRESCO）

- Mr. Hamed Houri Jafari, Member of the Board of IRESCO
- Mr. Mashayekhi, Member of the Board of IRESCO
- Mr. Najabi, Member of the Board of IRESCO

（6）ESCO 事業者（ESCO Companies）

- Mr. Ali M. Mirshams, Managing Director of ASIA WATT
- Mr. Safari, Managing Director of Behineh Suzan Sant ESCO
- Mr. Bathaie, Pishrun Energy
- Mr. Jabbar, Consultant of Distribution Dept. of Tavanir Co.

（7）在イラン日本国大使館（ Embassy of Japan：EOJ）

- Mr. Hiroki Suemori, First Secretary, Head of Economic Section
- Mr. Hiroshi Fumoto, Second Secretary, Economic Section

（8）国際協力機構（ Japan International Cooperation Agency：JICA）

- Mr. Yasuhito Takeuchi, Chief Representative, Iran Office
- Mr. Daijiro Kato, Senior Project Formulation Advisor, Iran Office

第２章　イランにおける省エネルギー・ESCO をとりまく現状

２－１　エネルギー消費動向

２－１－１　エネルギー生産と消費

イランは中東諸国のなかではサウジアラビアに次いで 2 番目に原油の国内消費量が多い。イランの 2010 年の原油生産量は 360 ～ 365 万バレル / 日、国内の消費量は約 180 万バレル / 日で、前年より 10%消費量が増えている。

天然ガスの 2010 年の生産量は、6 兆立方フィート（trillion cubic feet：TCF）で、国内の消費量は約 5.1TCF で、生産量のほとんどを国内で消費している。

電力においては、2009 年の発電量は 201.6 GWh で、国内の消費量は 161.5GWh である。

２－１－２　分野別エネルギー消費構造

イランの 2007 年の最終エネルギー消費を表２－１に示す。最終エネルギー消費量 1,053 百万原油換算量（barrel of oil equivalent：boe）のうち、41.1%に当たる 432 百万 boe が住宅・業務部門で消費され、運輸部門（265 百万 boe、25.2%）、産業部門（238 百万 boe、22.6%）がこれに続いている。

民生・住宅分野のエネルギー消費量 432 百万 boe のうち天然ガスの消費量が 289 百万 boe で、約 67%を占めている。

表２－１　イランの最終エネルギー消費（2007 年）

(Mboe)　　(میلیون بشکه معادل نفت خام)

Description	Oil (1) نفت (1)	Natural gas گاز طبیعی	Coal زغال سنگ	Solid biomass زیست توده جامد	Hydro انرژی آبی	Renewables انرژی های تجدیدپذیر	Electricity برق	Total کل انرژی	شرح
TFC	**480.3**	**471.8**	**3.8**	**5.6**	**-**	**-**	**91.2**	**1052.7**	**کل مصرف نهایی**
Residential & commercial	90.2	289.0	0.07	5.6	-	-	47.5	432.3	خانگی، عمومی و تجاری
Industry	65.0	140.9	1.0	-	-	-	30.6	237.5	صنعت
Transport	258.5	6.6	-	-	-	-	0.1	265.2	حمل و نقل
Agriculture	26.1	1.1	-	-	-	-	10.4	37.6	کشاورزی
Other uses	-	-	-	-	-	-	2.7	2.7	سایر مصارف
Non-energy use	40.6	34.2	2.8	-	-	-	-	77.5	مصارف غیر انرژی

（注）エネルギーバランス表より最終エネルギー消費部分を抜粋
出所：Iran and World Energy Statistics and Figures（2007）

２－１－３　住宅・ビル分野のエネルギー消費傾向

SABA 及び IFCO が過去に実施した業務用ビルのエネルギー診断の結果を表２－２、表２－３に示す。

表２－２　SABA のエネルギー診断の結果

建　物	延床面積 (m^2)	エネルギー消費原単位 (MJ/m^2)
Office Bldg.（13Fl.）	9,230	2,388
Office Bldg.	6,960	1,822
Office Bldg.	7,536	1,774
Office Bldg.	6,000	1,807
High Efficiency Bldg.（14 Bldgs.）	50,400	1,616
CTC Building	1,950	1,596
SB Call Center	3,217	5,230
Isfahan Electricity Bldg.	8,400	2,874
Ahvaz Electricity Bldg.	4,700	2,837
Bakhtar Electricity Bldg.	7,500	3,182
Construction & Development Bldg.	2,626	4,064
Urban services Bldg.	1,904	2,309
HSE Bldg.	510	1,342
Maskooni Bldg.	325	877
Audio & Visual Department	1,800	1,645
Edari	4,400	2,308

出所：Iran and World Energy Facts and Figures 2008

表２－３　IFCO のエネルギー診断の結果

建　物	延床面積 (m^2)	エネルギー消費原単位 (MJ/m^2)
Central Ⅳ	4,947	2,365
Central Ⅴ	5,500	2,095
Central Ⅵ	8,303	1,868
Central Ⅶ	6,100	825
Central Ⅷ	7,510	3,035
Central X	825	893
Echymose building	2,205	1,178
Hasko Building	2,076	847
First central	20,650	8,910
New central	17,500	10,876

Central broadcasting	6,453	6,600
Spring building	11,272	11,739
The second	4516	3,601
The building Iranshahr	1,977	4,966
The building Khaghani	834	8,635
Educational complex Vanak	1,378	4,350
Complex technical training	2,415	9,205
Cypress structure	759	4,196
The building geisha	1,823	5,099
Mirdamad Building	145	4,638
Babolsar’s training complex	1,000	4,893
Caspian oil company	1,743	4,783
The building language learning	1,800	3,205
The building of the oil	400	1,515
Guard building	640	4,839
Tondguyan Building	3,094	7,923
Technology building	1,050	3,419
The building consultation	150	3,840
The Basij	1,000	5,075
Auditing building	3,300	4,909
Infected building	600	4,644
The building inn	2,625	3,683
Parking Shiraz	3,250	4,842
College of Tehran’s oil	2,064	10,773
Tehran university dormitory	2,700	6,297
college dorm oil	1,750	4,716
Stir 2 adjoining conex club	380	4,120
faculty research center	1,600	2,339

出所：countries’ energy Audit and the governmental and non-governmental organizations

サンプル数は少ないが、イランの業務用ビルのエネルギー消費原単位は、日本の業務用ビルの平均値（庁舎：1,261MJ/m^2、～ 20,000m^2：1,737 MJ/m^2）と比較すると大きいことが分かる。

イランでは、エネルギー管理システムの導入が少なく、設備ごとのエネルギー計測データが少ないため、エネルギー利用用途別、設備別のエネルギー消費割合の分析には至っていない。

２－２　省エネルギー・ESCO に係る上位政策

２－２－１　第 5 次 5 カ年計画（Iran’s Fifth Five-year Development Plan）

この計画では、経済成長率の目標値を最低年率 8%としている。また、省エネルギーに関しては、第 134 項において、エネルギー消費及び電力消費の適正化を行い、エネルギー資源の維持と環境保護のために、MOE、石油省（Ministry of Petroleum：MOP）は、ガイドライン（5 カ年計画の 1 年目に策定）に基づき、エネルギー消費状況の把握や省エネルギー機器の生産に係る経済的なインセンティブを付与することが示されている。

また、第 133 項では、エネルギー（電力）関連について、エネルギー供給形態の多様化、発電所の最適化、エネルギーロスの削減、及び熱電併給システム（Combined Heat and Power：CHP）の開発のために必要とされる MOE の役割（補助金の支給やインセンティブの策定等）を説明している。

２－２－２　エネルギー消費パターン改革法（2011 年 3 月制定）

本法律の目的は、エネルギー使用の管理と最適化である。具体的には、国家の生産力と社会保障を損なうことなく、エネルギー損失の回避、効率と生産性の向上、及び持続可能なエネルギーと環境保護の発展をめざすものである。基本的な政策としては、エネルギー需給の管理、最適レベルまでのエネルギー消費削減、エネルギー転換・送配電・消費の効率向上、及びエネルギー損失の回避が挙げられている。これらエネルギー分野の政策立案は政府が行っており、実施にあたっては最高エネルギー評議会（Supreme Energy Council）の承認が必要である。

MOE、MOP 等がそれぞれの担当分野において政策の実施を担っている。各省の担当は以下のとおりである。

表２－４　省エネルギー法における各省の担当事項

MOE/MOP	エネルギー効率化・省エネルギー（EE&C）の促進とそれに係る資本提供、エネルギー供給・エネルギー消費に係る規制
MOP	燃料に係るエネルギー消費の最適化、エネルギー転換技術の発展、エネルギー最適化に係る長期的費用の削減等
MOE	電力に係るエネルギー消費の最適化、再生可能エネルギーの利用、EE&C 促進、環境保全等
MOEF	MOE、MOP 等と連携し、ESCO 普及のための基準や支援策の策定
MRUD	MOE、MOP 等と連携し、ビルの省エネルギーに係る規制作成 ビルの省エネルギーのトレーニングに係る学習材料の準備

MOEF：Ministry of Economy and Finance（経済財務省）

ビル分野におけるエネルギーについては、ビルのエンジニアと管理制度に係る法律の施行を MRUD が MOE 及び MOP と連携して行う。さらに、MRUD は主にグリーンビルの実現に向けた原理と規制を、MOP 及び MOE はグリーンビルのエネルギー消費基準の策定を行う。

また、特に ESCO 事業の推進においては、大統領府戦略計画監督庁（Presidential Deputy of Strategic Planning and Supervision：SPAC）、MOE、MOEF、MOP が協力して進めていくことが、

第 17 条に規定されている。

表２－５　エネルギー消費パターン改革法の第 17 条の英訳

第 17 条	Based on the joint proposal of Ministries of Energy, Petroleum, Economy and Finance, and Presidential Deputy of Strategic Planning and Supervision and in order to support ESCOs, the council of ministers will approve necessary regulations and instructions within 6 months after approval of this law in such a way that it provides enough motivations for establishment and development of such companies in the country. The financial resources required for execution of this law will be provided from what mentioned in article 73 of this law. Also the administrative organizations mentioned in article 4 of the national services law can create a commitment from the amount of saved energy for making contracts on energy efficiency and take measures based on credit resources mentioned in article 73 and resulted energy savings.

２－２－３　補助金合理化法（2010 年 12 月制定）

イランでは、政府の補助金を投入することにより、これまでエネルギーの国際価格よりもかなり乖離のある価格でイラン内にエネルギーを供給していた。

2010 年に制定された補助金の合理化に関する法制度（以下、補助金削減法）では、第 5 次 5 カ年計画終了時（2015 年末）を目安に、燃料の現地販売価格を FOB（Persian Gulf Free On Board）のデリバリー価格の 90%以上に、また天然ガスの現地平均販売価格を輸出価格の 75%相当に設定することを掲げている。エネルギー価格を上げることにより削減した補助金の具体的な使途は、以下のとおりである。

1）50%：民生部門への補填（家庭への補助金、保険・医療システムの充実、住宅・雇用に対する援助、社会支援システムの強化等）
2）30%：産業界の省エネルギー推進（EE&C の向上、製造業における技術構造の改革、公共交通・輸送機関のサービスの充実、産業・農業分野への支援等）
3）20%：政府の当座の資金（いずれ 0%となる予定）

2011 年には補助金合理化の第 1 弾が実施され、エネルギー価格が表２－６のとおり引き上げられた。

表２－６　補助金合理化実施前後のエネルギー価格

種　別	用　途	実施前	実施後
ガソリン	レギュラー	1,000 リアル /L	4,000 リアル /L
	プレミアム	1,500 リアル /L	8,000 リアル /L
ディーゼル		165 リアル /L	3,500 リアル /L
天然ガス	民生用	690 リアル /m^3	1,000 リアル /m^3
	産業用	15.85 リアル /m^3	700 リアル /m^3
	発電用	49.3 リアル /m^3	800 リアル /m^3
電　気	民生用	152 リアル /kWh	1,300 リアル /kWh

2013 年 3 月 21 日以降に第 2 弾の実施が計画されている。

２－２－４　ビルディングコード 19 条（Article No.19 of Building Code）

ビルディングコード 19 条（2000 年発効）は、イランにおけるビル分野の省エネルギーに関する規制であり、概要は以下のとおりである。

19-1 章：総則、用語の定義
19-2 章：設計・施工に関する一般規則
19-3 章：外壁の設計
19-4 章：設備類の設置
19-5 章：照明と電気

19-3 章から 19-5 章に関しては、省エネルギーに関する事項が規定されている。

なお、MRUD によるとビルディングコード 19 条を遵守している新築建築物は、新築建築物全体の 30%程度とのことである。

２－３　省エネルギー・ESCO に係る組織体制

２－３－１　ビルの省エネルギーに係る組織、体系

イランにおいてエネルギーを所管する 2 大官庁は、エネルギー省（MOE）と石油省（MOP）である。前者は主として電力関連分野を、後者は主として石油及び天然ガス関連分野を所管する。

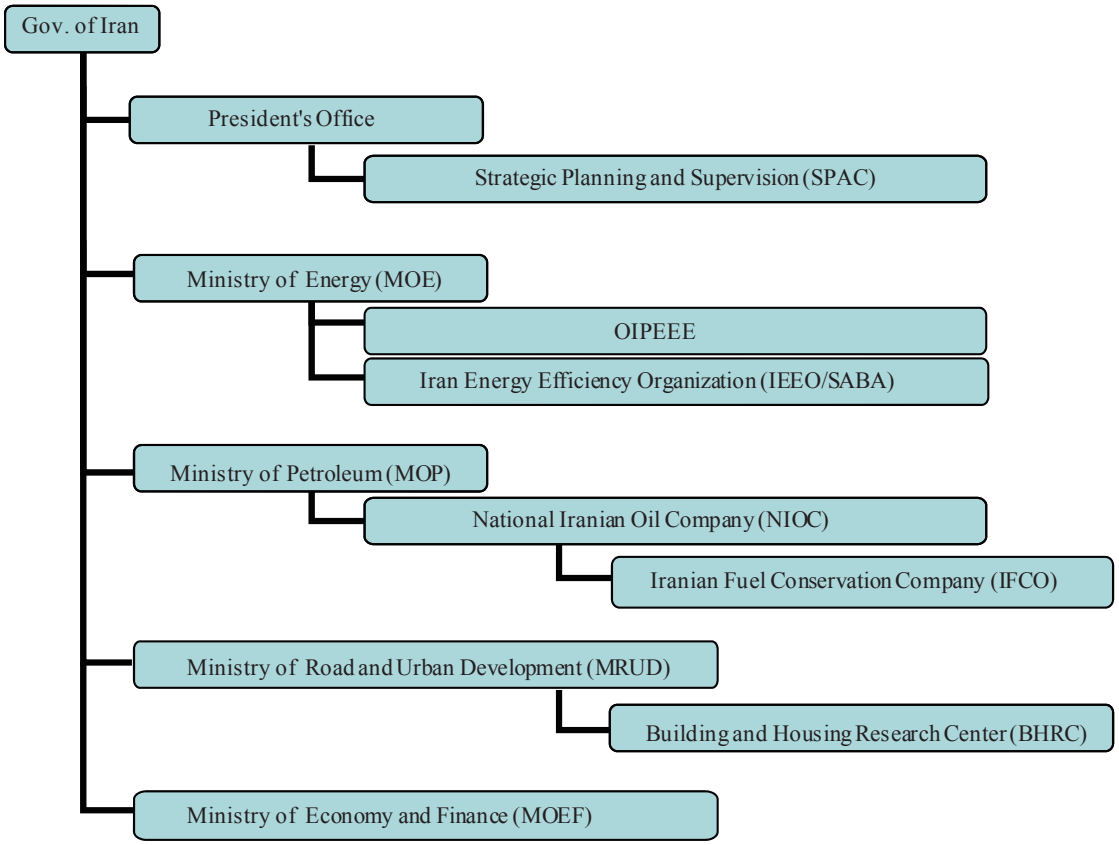


図２－１　ビルの省エネルギー推進に関与する主な政府組織等

２－３－２　MOE

エネルギー省（MOE）は電力関連分野を所管するが、イランにおいて省エネルギー政策は主として MOE 主導で行われてきた。

MOE の組織図を図２－２に示す。

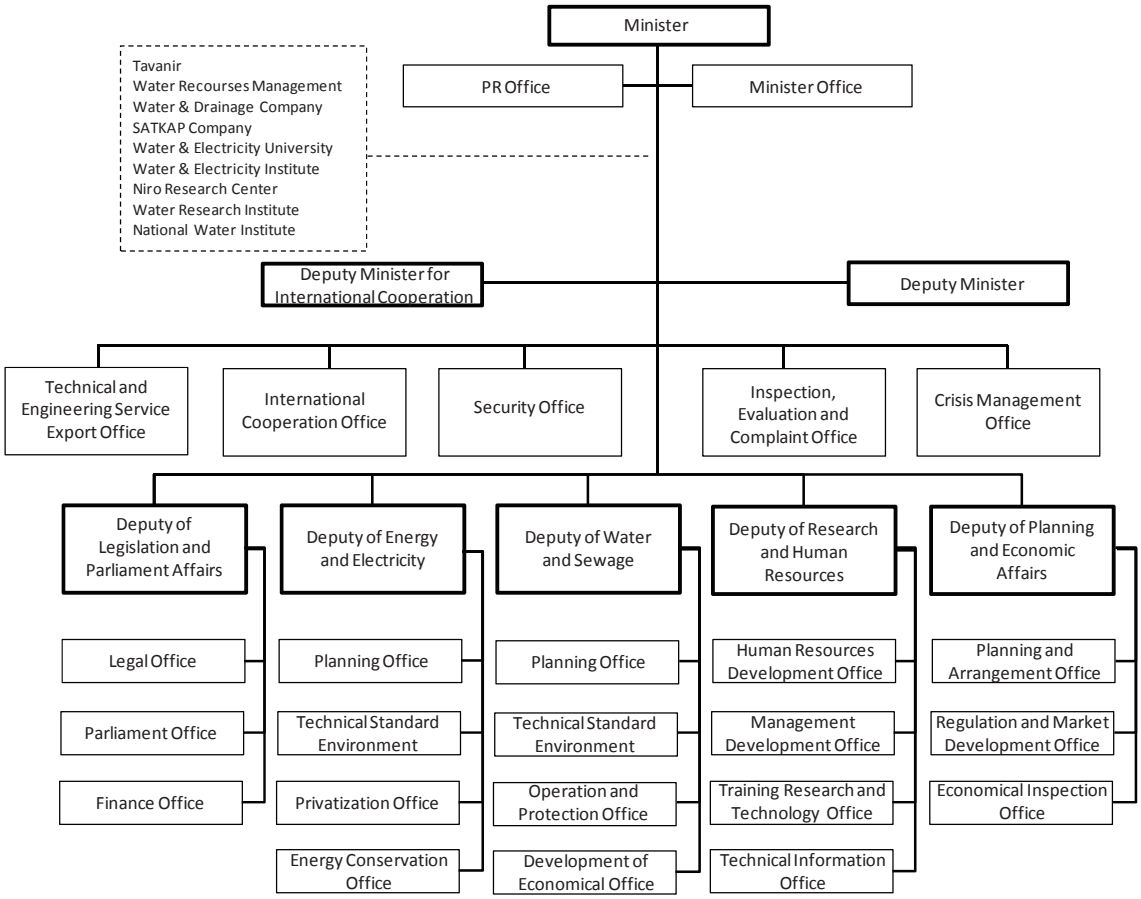


図２－２　MOE の組織図

２－３－３　SABA

イラン省エネルギー機構（SABA / IEEO）は、1996 年に MOE 傘下の機関として設立された。主な所掌事項は、工場のエネルギー診断、省エネルギーコンサルティング、省エネルギー教育及び広報及び、電力利用及び廃熱利用に係る研究開発である。

SABA の組織図を図２－３に示す。

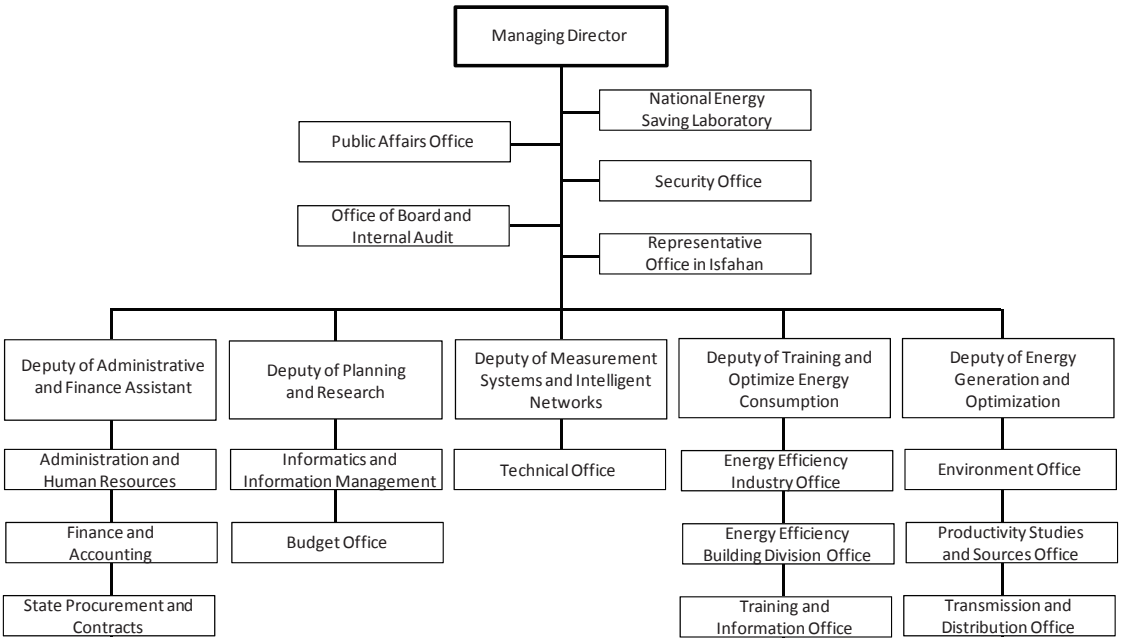


図２－３　SABA の組織図

将来、SABA は MOE から独立した組織（半官半民）になることも検討されている。

２－３－４　IFCO

イラン省燃料消費最適化機構（IFCO）は、2000 年に MOP 傘下の機関として、イラン国営石油会社（National Iranian Oil Company：NIOC）の下に設置された。同機関は、国内のエネルギー使用状況を把握したうえで、燃料にかかわる省エネルギーを全国的に普及させることを目的として活動を行っている。

IFCO の組織図を図２－４に示す。

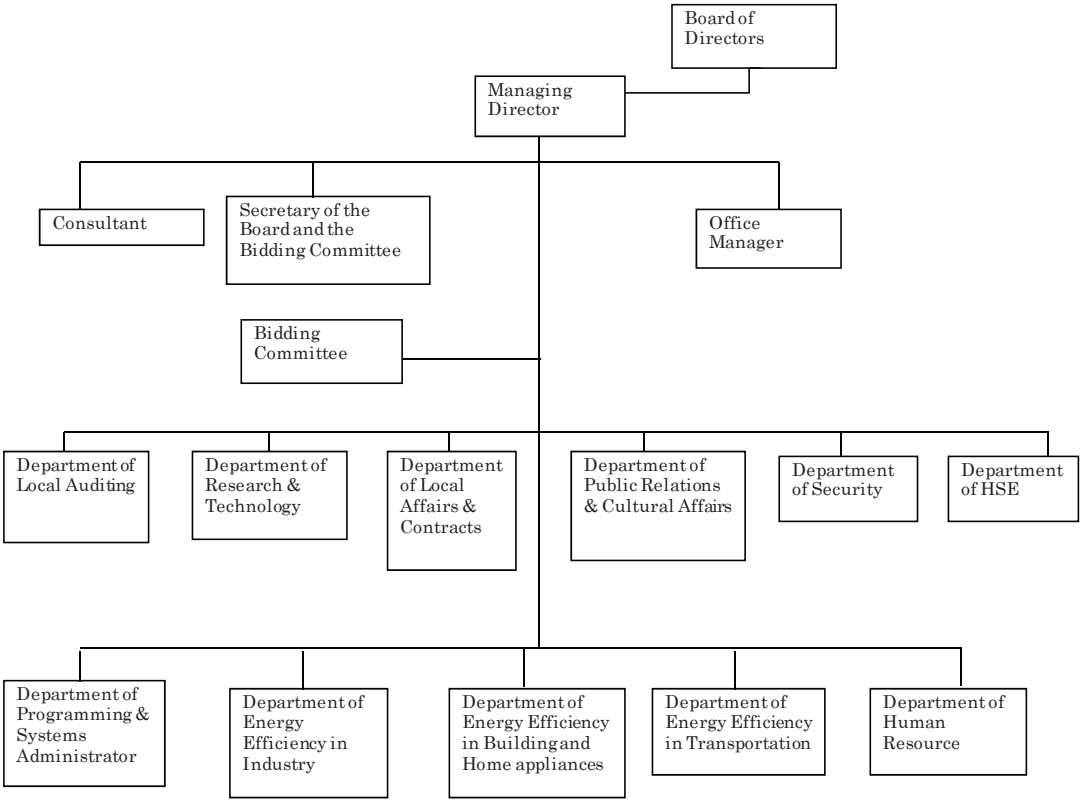


図２－４　IFCO の組織図

２－３－５　MRUD

道路都市開発省（MRUD）は、建物及び住宅の省エネルギーにかかわる設計基準、規制などの制定を行っている。

MRUD の組織図を図２－５に示す。

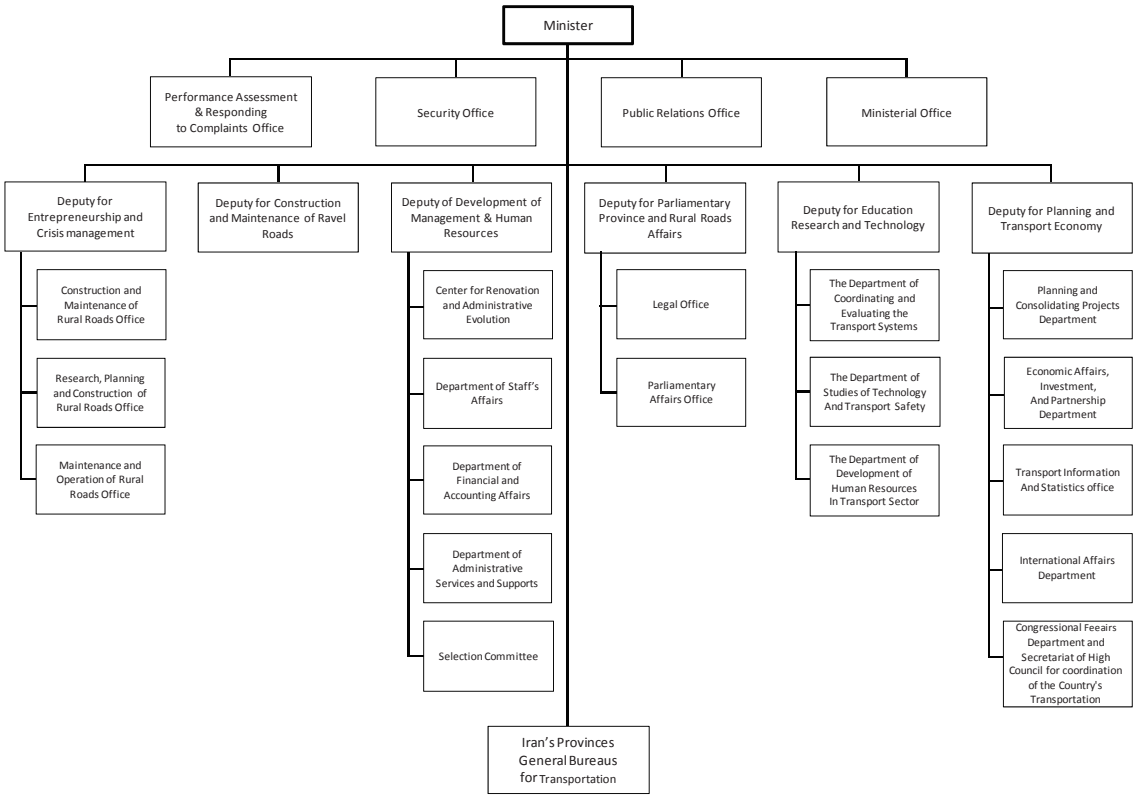


図２－５　MRUD の組織図

２－３－６　イラン ESCO 協会

イラン ESCO 協会（IRESCO）は、2012 年 6 月に設立された。民間企業及び個人の会員で構成された民間組織であるが、MOE 及び MOP が公認し、SPAC の下部に位置づけられている団体である。現在、ESCO 普及のパンフレット、ESCO 標準契約書等の作成中である。今後、SABA や IFCO の支援を受けながら ESCO の普及促進にかかわる活動を行う計画である。

２－４　省エネルギー・ESCO に係るファイナンス

本調査において、確認された省エネルギーにかかわる金融補助政策は以下のとおりである。

・家電メーカーに対して、家電製品の技術研究開発の資金提供（ゼロ金利融資）
・ビルエネルギー管理システム（Building Energy Management System：BEMS）導入への資金協力（政府系ビルは政府の資金、民間ビルは補助金）
・銀行からの省エネルギー化目的の低金利融資（産業分野では実績が多いが、ビル分野ではあまり実績はない）
・IFCO による金利負担（産業分野）
・SABA による機器メーカーへの省エネルギー機器に関する研究、開発費の融資

・政府系施設の省エネルギー化への資金負担（MOE は発電所、MOP は石油プラント等）

また、2011 年に国家開発基金（National Development Fund：NDF）が設立され、民間セクター、ジョイントベンチャー、外国投資企業等の開発プロジェクトに幅広く投資されており、本基金より再生可能エネルギー開発プロジェクトに対し、5 億ユーロの支出を大統領が承認したとの報道がある。原資は石油・天然ガスの収入で、2011 年時点での残高は 244 億米ドル、2012 年時点での残高は 350 億米ドルであり、貸出先は民間セクターに限定されている。設立の法的根拠は、第 5 次国家経済開発 5 カ年計画の第 84 条に規定されている。将来的に、民間セクターに対する ESCO 推進に活用されることが期待される。

第３章　調査結果

３－１　団長所感

イランは、世界全体の石油埋蔵量の 10%程度を保有する世界有数の産油国であり、わが国のエネルギーセキュリティー、特に石油確保の観点から重点国である。JICA は、イランに対して、長年にわたり省エネルギー分野の協力を行っており、開発計画調査型技術協力「エネルギー最適利用計画（1995 ～ 1997 年）」を皮切りに、技術協力プロジェクト「省エネルギー推進プロジェクト（2003 ～ 2007 年）」を実施し、エネルギー管理制度に係る人材育成を通じて産業部門の省エネルギー推進を支援してきた。さらに、開発計画調査型技術協力「ビルの省エネルギー管理と関連法令整備のための調査（2010 ～ 2011 年）」の実施を通じて、民生部門の省エネルギーの推進に係る方法論を検討し、ESCO 事業によるビル省エネルギーの推進が有望であることが特定されている。

今般、要請された「政府系ビルの ESCO 導入に係るパイロット事業実施プロジェクト」は、イランにおいて、ESCO 事業推進のための体制を整備するとともに、政府系ビルの ESCO 導入に係るパイロット事業の実施を通じて、ESCO ビジネスモデルの確立が促進され、イランのビルにおける省エネルギーの促進に寄与するものである。本詳細計画策定調査では、イランのビルを含む民生部門のエネルギー消費が最終エネルギー消費の 40%とセクター別で最大であるとともに、補助金合理化法の実施を受けてエネルギー価格が上昇し、エネルギー消費パターン改革法により ESCO 事業の推進が法的に位置づけられていることから、エネルギー診断企業等が、ESCO 事業に興味を寄せており、ESCO 事業に係る技術移転に最適なタイミングであることが確認されている。また、本事業の実施においては、ESCO 協会の設立、及び、パイロット事業に係る予算措置などが懸念事項として挙げられていたが、本調査にて、ESCO 協会が設立済みであり、パイロット事業の予算は全面的にイラン側が負担することで合意が得られているため、一定の環境が整っていることが確認されている。

本事業を通じて、イランに ESCO 事業が定着するためには、MOE の管轄である電気分野と MOP の管轄である熱分野、双方を対象にすることが重要であり、実施機関である SABA/IEEO と共同実施機関である IFCO の連携が重要である。また、ESCO 事業の投資回収年数を短くし、事業化につながりやすい環境を整えるための支援措置（優遇税制、利子補給、補助金制度）の構築が重要である。JICA では、本事業において、これらに対して一定の働きかけは行うものの、イラン側の自助努力が重要な要素となっている。また、ESCO 事業において、省エネルギー効果保証のためのモニタリング期間が重要である。これらの要素を勘案し、4 年間のプロジェクトを構成した。

３－２　プロジェクトの基本計画・概要

＜プロジェクト概要＞

【上位目標】

イランの政府系ビルに対する ESCO の導入を通じて、ビルの省エネルギーが促進される。

【プロジェクト目標】

イラン政府や ESCO 協会の ESCO 事業促進に係る能力が強化されることにより、ESCO の

ビジネスモデル確立が促進される。

【成果】

1. イランでの ESCO 事業推進のための体制が整備される。
2. 政府系ビルへの ESCO 導入に係る、エネルギー省 /ESCO 協会の能力が強化される。
3. 政府系ビルへの ESCO 導入に係る、検討・促進が行われる。
4. ESCO 導入に係る政策提言が行われる。

【活動】

1-1. ESCO 協会のための体制、規則、ガイドライン整備支援
2-1. ESCO 導入に係る施策、マニュアルの検討・整備支援
2-2. ESCO 契約書のひな型等の整備支援
2-3. ESCO 事業及びビル省エネルギーの普及啓発・研修能力の育成
2-4. ビル省エネルギー政策・法制度、資金メカニズムに係る事例紹介
3-1. ESCO 事業者の能力強化
3-2. ESCO 事業者による政府系ビルのエネルギー診断
3-3. ESCO 事業者による政府系ビルのパイロット事業実施
3-4. パイロット事業のモニタリング
4-1. ESCO 導入に係る政策提言

【協力期間】

2013 年 7 月から 2017 年 6 月（48 カ月）を想定。

【実施体制】

（イラン側）：

① エネルギー省（MOE）電力エネルギー生産性経済局（Office for the Improvement of Productivity and Economy of Electricity and Energy：OIPEEE）
- プロジェクトディレクター
  電力エネルギー生産性経済局長（General Director, OIPEEE MOE）
- プロジェクトマネジャー
  電力エネルギー生産性経済局需要省エネルギー室（Department of Energy Efficiency in Demand Side, OIPEEE MOE）

② イラン省エネルギー機構（SABA/IEEO）
- プロジェクト実施機関

③ イラン省燃料消費最適化機構（IFCO）
- プロジェクト共同実施機関

④ イラン ESCO 協会（IRESCO）
- 民間 ESCO 事業者の集まり。MOE、SABA、IFCO を経由して人材育成予定。

⑤ ESCO 事業者
- ESCO 協会を経由して人材育成予定。

（日本側）：

・コンサルタント業務実施契約により本格協力を実施。

・本邦研修等は、ESCO 推進協議会の協力を得る。

【投入】

・専門家（短期 3 名）

総括 /ESCO 普及制度（Team Leader / ESCO system）

ESCO/ 省エネルギー技術（熱）〔ESCO Expert / Energy Efficiency Technology（Heat）〕

ESCO/ 省エネルギー技術（電気）〔ESCO Expert / Energy Efficiency Technology（Electricity）〕

・本邦研修（3 回）

1 回目：ESCO 政策、規制、資金メカニズム

想定される研修員：MOE、MOP、MOEF、SPAC 等

エネルギー消費パターン改革法（No.386/85011）第 17 条のとおり

2 回目及び 3 回目：ESCO 事業（IRESCO 支援）

想定される研修員：MOE、SABA、IFCO、IRESCO

３－３　技術協力実施上の留意点

３－３－１　実施体制

IRESCO は、2012 年 6 月に既に設立されていることが確認されている。同協会は、MOE と MOP が公認し、SPAC の下に位置づけられ、資格を取得した民間の ESCO 事業者約 45 社と個人会員数名で構成されていることが判明したが、民間団体という位置づけであることから、本協力では、当初の想定どおり、MOE をカウンターパート（C/P）とし、SABA を実施機関、IFCO を共同実施機関とすることで、イラン側と合意した。なお、IRESCO や ESCO 事業者へは、MOE、SABA、IFCO 経由で働きかけることとし、必要に応じて協力を得ることとする。

３－３－２　財政支援策に対する支援

ESCO 導入には、「政府基金」や「助成制度」等の財政支援策の検討が重要であるものの、有効な支援策を構築するためには、イラン特有の金融制度・商習慣・法規制などを理解する必要があることから、本プロジェクトでは、日本の財政支援策（補助金・優遇税制・利子補給等）の制度紹介を中心とし、主に本邦研修で扱う項目とする。

３－３－３　パイロット事業

パイロット事業を実施するための予算は、原則としてイラン側が負担する。対象となる候補ビルは、プロジェクト開始前までにイラン側が選定し、ショートリストを作成する。

３－３－４　プロジェクト期間

イラン側より、要請上のプロジェクト期間（4 年間）を短縮し、プロジェクトの成果が早期に現れるよう活動を前倒ししたいとの要望があった。このため、可能な範囲でプロジェクトの活動を前倒しすることとし、パイロットプロジェクトのモニタリング期間を長めに取ることと

した。プロジェクト期間は4年間とする。

３－３－５　本邦研修

イラン側の強い要望により、当初予定の2回の研修を3回とすることで合意した。1回目はESCO政策、規制、資金メカニズムの研修を想定し、主としてMOE、MOP、MOEF、SPAC等、エネルギー消費パターン改革法（No.386/85011）第17条に記載のある関係者の招へいを予定している。また、2回目及び3回目はESCO事業（IRESCO支援）の研修を想定し、主としてMOE、SABA、IFCO、IRESCOなどの関係者の招へいを予定している。なお、研修の詳細、研修期間、研修員の人数等は、実施時に別途定めることとする。

付　属　資　料

１．要請書

２．署名した M/M

３．収集資料「エネルギー消費パターン改革法（No. 386/85011）（英訳）」

1．要請書

4120020A0010　412：イラン
政府系ビルのESCO導入にかかるパイロット事業実施プロジェクト
技術協力プロジェクト

技2

ESCO導入
(MoE)

APPLICATION FORM FOR JAPAN'S TECHNICAL COOPERATION

1. **Date of Entry:** Day 19 Month July Year 2011

2. **Applicant:** The Government of Islamic Republic of Iran

3. **Technical Cooperation (T/C) Title:** Implementation of pilot project to introduce ESCO for government's buildings

4. **Type of the T/C** **※select only one scheme.**

■ Technical Cooperation Project / Technical Cooperation for Development Planning

☐ Individual Expert ☐ Individual Training ☐ Equipment

5. **Contact Point (Implementing Agency):** Ministry of Energy, Office for the Improvement of Productivity and Economy of Electricity and Energy (OIPEEE)

Address: Niyayesh Highway, Vali-e-Asr St., Tehran, Iran
Contact Person: Mohammad Ali Shafiezadeh, General Director
Tel. No.: +98-21-81606850 Fax No. +98-21-81606862
E-Mail: shafiezadeh@moe.org.ir

6. **Background of the T/C**

(Current conditions of the sector, Government's development policy for the sector, Issues and problems to be solved, Existing development activities in the sector, the Project's priority in the National Development Plan / Public Investment Program, etc.)

The Islamic Republic of Iran (hereafter referred to as the "Iran") is one of the world's most eminent oil-producing countries, producing 90 billion barrels that accounts for 9% of oil deposits in the entire world. However, general energy consumption occupies 44 percent of general energy supply in Iran, and with the annual energy consumption staying at 6 percent growth rate, it is projected that Iran would begin importing oil in 2018. Efficient utilization of energy is becoming the key issue in terms of securing the volume of oil for export that brings economic growth to the country. After establishment as the first institution for EE&C promotion in 1994, OIPEEE was involved in EE&C activities cooperated with other ministries for industries and commercial sectors. OIPEEE conducted JICA Technical Cooperation Project "Project on Energy Management

Promotion in the Islamic Republic of Iran" and achieved EE&C promotion in industrial sector. On the other hand, energy consumption of buildings have increased constantly and reached about 40% of the energy generated by the supply side.

Iran government strengthens EE&C promotion by setting of series of the laws and regulations as Energy Management Law, Subsidy Rationalization Law, and 5th 5year National Development Plan. EE&C promotion in the building sector is now the most immediate priority mission of OIPEEE. According to the preliminary study by JICA, it became clear that the Model Project Implementation including Trial-Operation of ESCO Framework should be added to Establishment of EE&C Training Center for Human Resource Development to enhance the effect of the project.

ESCO (Energy Service Company) is one main measure for promoting energy efficiency and conservation in building sector. It is must do to develop ESCO business and grow ESCO market with constructing their supporting system. And it is necessary to implement the pilot project to verify the trial system works well. Therefore, requiring item should be properly reviewed referring the final report of the study.

7. Outline of the T/C

(1) Overall Goal

(Long-term objective)

(i) The market of ESCO for the buildings will expand to private sector in 2015,

(ii) Eighty percent (90%) of the government building in Iran will get energy audit to study the feasibility of ESCO in 2015,

(iii) Ten percent (10%) of the government building will be introduced ESCO in 2020, and

(iv) Specific energy consumption of government buildings in 2020 will be reduced by 30 percent (30%) compared to 2012 levels

(2) T/C Purpose

(Objective expected to be achieved by the end of the project period. Elaborate with quantitative indicators if possible)

The purposes are to develop the capacity of ESCO Company and to establish business model of ESCO in Iran though the implementation of pilot project to introduce ESCO for government's buildings.

(3) Outputs

(Objectives to be realized by the "T/C Activities" in order to achieve the "T/C Purpose")

(i) ESCO Association of Iran will be established, and
(ii) ESCO Companies will deeply understand a series of ESCO's works,
(iii) The introduction manual of ESCO for government's building will be prepared,
(iv) The standard of ESCO contract will be prepared,
(v) The financing support program for ESCO PJT will be implemented,
(vi) A governmental fund for ESCO will be created.

(4) T/C Site

(In case the proposed T/C assumes a particular area, please enter the name of the target area for the T/C and attach a rough map to the documents submitted. The attached map should be at a scale that clearly shows the project site.)

The selection of candidate buildings to introduce ESCO is included in the scope of the T/C.

(5) T/C Activities

(Specific actions intended to produce each "Output" of T/C by effective use of the "Input".)

(i) ESCO Association of Iran will be established
- > MOE will establish a preparatory committee for establishment of ESCO Association.
- > The preparatory committee will consider the rule and the guideline of the ESCO Association.

(ii) ESCO Companies will deeply understand a series of ESCO's works.
- > ESCO companies will carry the energy conservation audit of government buildings and make the proposal of ESCO.
- > ESCO companies will make a performance contact of ESCO with the government.
- > ESCO companies will carry the pilot ESCO projects with financing from governmental fund.
- > ESCO Association will monitor the pilot projects, and share information with the member companies.
- > ESCO Association will carry the capacity development for ESCO Companies.

(iii) The introduction manual of ESCO for government's building will be prepared.
- > The review committee of the manual will be formed in ESCO Association.
- > The pilot ESCO projects will be implemented more than 5 projects.
- > The committee will make the manual though the implementation of the pilot projects

(iv) The standard of ESCO contract will be prepared,
- > The review committee of the standard contract will be formed in ESCO Association.
- > The pilot ESCO projects will be implemented more than 5 projects.
- > The committee will make the standard contract though the implementation of the pilot projects.

(v) The financing support program for ESCO PJT will be implemented.

(vi) A governmental fund for ESCO will be created.
- > MOE will form the review committee of the program.
- > The government will create a governmental fund for ESCO.
- > The pilot ESCO projects will be carried with financing from a governmental fund for ESCO.
- > The committee and ESCO Association will study the usable program for ESCO in Iran.

(6) Input from the Recipient Government

(Counterpart personnel (identify the name and position of the Project manager), support staff, office space, running expenses, vehicles, equipment, etc.)

(i) To establish a preparatory committee for establishment of ESCO association,
(ii) To assign the counters part for the Japanese experts,
(iii) To assign the supporting stuffs,
(iv) To arrange the office space for the team.
(v) To bear the running expenses, and
(vi) To arrange the vehicles for the Japanese experts.

(7) Input from the Japanese Government

(Number and qualification of Japanese experts/consultants, contents of training (in Japan and in-country) courses, seminars and workshops, equipment, etc.)

(i) Team Leader / ESCO business expert
(ii) EE&C technology expert 1 (electricity)
(iii) EE&C technology expert 2 (HVAC)
(ii) Financing mechanism expert

8. Implementation Schedule

Month _____ Year 2012 ~ Month _____ Year 2016

9. Description of Implementing Agency

(Budget allocated to the Agency, Number of Staff of the Agency, Department/division in charge of the T/C, etc.)

OIPEEE will bear the overall responsibility for smooth implementation of the project.

10. Related Information

(1) Prospects of further plans and actions/ Expected funding resources for the Project:

(If implementing agency plans to take some (future) actions in connection with this proposed project, please describe the concrete plans/action and enter the funding sources for the plans and actions.)

Since Energy Efficiency and Conservation in building sector is implemented by

ESCO companies, therefore development of Energy Saving Companies are important and has been emphasized in both Energy management Law and 5th Five Years Development plan. In this case, any necessary budget for the study and implementing of the plan is allocated by the government annually.

(2) Activities by other donor agencies, if any:

(Please pay particular attention to the following items:

-Whether you have requested the same project to other donors or not.

No.

-Whether any other donor has already started a similar project in the target area or not.

No.

-Presence/absence of cooperation results or plans by third-countries or international agencies for similar projects.

No

-In the case that a project was conducted in the same field in the past, describe the grounds for requesting this project/study, the present status of the previous project, and the situation regarding the technology transfer.

-Whether there are existing projects/studies regarding this requested project/study or not. (Enter the time/period, content and concerned agencies of the existing studies.))

No.

(3) Other relevant Activities (Activities in the sector by the recipient government and NGOs), if any:

No.

(4) Other relevant information (Available data, information, documents, maps, etc. related to the Project)

Some information about Iranian ESCO companies and their capabilities has been collected in the Development Study for EE&C in Building by Japanese team

11. Global Issues *(Gender, Poverty, Climate change, etc.)*

(Any relevant information of the project from global issues (gender, poverty, climate change, etc.) perspective.)

Development of ESCO companies for EE&C promotion in the building sector is directly connected to the climate change and GHG reduction

12. **Environmental and Social Considerations**

(In case of Technical Cooperation Project / Technical Cooperation for Development Planning, please fill in the attached screening format.)

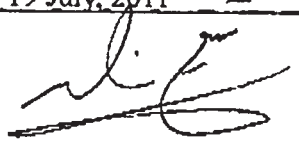
13. **Others**

Signed: Mohammad Ali Shafiezadeh

Title: General Director

On behalf of the Government of Islamic Republic of Iran

Date: 19 July, 2011



7

If yes, please mark the corresponding items.

National parks, protection areas designated by the government (coastline, wetlands, reserved area for ethnic or indigenous people, cultural heritage)

Primeval forests, tropical natural forests

Ecologically important habitats (coral reefs, mangrove wetlands, tidal flats, etc.)

Habitats of endangered species for which protection is required under local laws and/or international treaties

Areas that run the risk of a large scale increase in soil salinity or soil erosion

Remarkable desertification areas

Areas with special values from an archaeological, historical, and/or cultural points of view

Habitats of minorities, indigenous people, or nomadic people with a traditional lifestyle, or areas with special social value

Question 8:

Does the project include any of the following items?

Yes ■No

If yes, please mark the appropriate items.

Involuntary resettlement (scale: households persons)

Groundwater pumping (scale: m3/year)

Land reclamation, land development, and/or land-clearing (scale: hectors)

Logging (scale: hectors)

Question 9:

Please mark related environmental and social impacts, and describe their outlines.

■Air pollution

☐Water pollution

☐Soil pollution

■Waste

☐Noise and vibrations

☐Ground subsidence

☐Offensive odors

☐Geographical features

☐Bottom sediment

☐Biota and ecosystems

☐Water usage

☐Accidents

■Global warming

10

☐Involuntary resettlement

☐Local economies, such as employment, livelihood, etc.

☐Land use and utilization of local resources

☐Social institutions such as social infrastructure and local decision-making institutions

☐Existing social infrastructures and services

☐Poor, indigenous, or ethnic people

☐Misdistribution of benefits and damages

☐Local conflicts of interest

☐Gender

☐Children's rights

☐Cultural heritage

☐Infectious diseases such as HIV/AIDS

☐Other (　　)

Outline of related impact:

[　　]

11

Question 10:

In the case of a loan project such as a two-step loan or a sector loan, can sub-projects be specified at the present time?

■Yes ☐No

Question 11:

Regarding information disclosure and meetings with stakeholders, if JICA's environmental and social considerations are required, does the proponent agree to information disclosure and meetings with stakeholders through these guidelines?

■Yes ☐No

دلایل درخواست همکاری فی مابین وزارت نیرو با آژانس همکاری های بین المللی ژاپن (جایکا)

با توجه به بررسیهای انجام شده و شناسایی پتانسیل صرفه جویی انرژی بیش از ۴۳ درصد در بخش ساختمان و همچنین مصرف بالای انرژی در این بخش که حدود ۴۰ درصد کل انرژی نهایی کشور را تشکیل می دهد و با عنایت به نتایج حاصل از انجام مطالعات قبلی و نیز مطالعه توسعه ای در زمینه بهینه سازی انرژی در ساختمان که با همکاری جایکا صورت پذیرفته است، پتانسیل صرفه جویی قابل ملاحظه ای ناشی از بهینه سازی "ساختمان های موجود" شناسایی گردیده که بخشی از ین پتانسیل از طریق اجرای راهکارهای صرفه جویی انرژی و بکارگیری اقدامات فنی و بخش دیگری از طریق ارتقاء دانش و توسعه منابع انسانی بصورت خاص و عام قابل حصول خواهد بود. در این خصوص با توجه به ارزیابی های انجام شده در زمینه اثربخشی آموزش در کاهش مصرف انرژی و بررسی های بعمل آمده در مرکز ملی آموزش مدیریت انرژی صنعت، پیش بینی می گردد تنها از طریق برگزاری آموزشهای کاربردی مدیریت انرژی در ساختمان که منجر به اجرای اقدامات بدون هزینه و کم هزینه می شود، ۱۰ درصد صرفه جویی انرژی محقق گردد.

بنابر موارد مطروحه، اهمیت بهینه سازی ساختمان های موجود و نیز آموزش علمی و عملی مدیران، مهندسین طراح و مشاوران انرژی بخش ساختمان در جهت توسعه منابع انسانی و کاهش مصرف انرژی، ضروری خواهد بود.

همچنین در راستای تحقق اهداف و برنامه های توسعه کشور در خصوص بهینه سازی انرژی، همکاری جمهوری اسلامی ایران با دولت ژاپن بعنوان کشور پیشرو در امر صرفه جویی و بهینه سازی انرژی و استفاده از تجربیات آن کشور در ایجاد ساختار، چگونگی توسعه و عملکرد فنی و مالی شرکتهای خدمات انرژی (ESCO) به عنوان بازوی اجرایی در توسعه اقدامات بهینه سازی انرژی در بخش ساختمان، از اهمیت ویژه ای برخوردار است.

بنابراین همکاری های فنی و آموزش های کاربردی جهت بکارگیری فن آوریهای بهینه سازی انرژی در صنعت برق کشور، ضروری و یکی از مهمترین گامهای اساسی در تحقق کارآیی انرژی می باشد.

بر این اساس، با توجه به پتانسیل صرفه جویی انرژی بخش ساختمان و در راستای ادامه همکاری وزارت نیرو با دولت ژاپن در قالب مطالعه توسعه‌ای بمنظور بهینه سازی انرژی، پیشنهاد انجام همکاری فی مابین در زمینه های "بهینه سازی انرژی در ساختمان های موجود" و "توسعه شرکتهای خدمات انرژی و اجرای پروژه نمونه" تعریف می گردد.

MINUTES OF MEETINGS
BETWEEN
THE JAPAN INTERNATIONAL COOPERATION AGENCY
AND
THE MINISTRY OF ENERGY
ON
DETAILED PLANNING SURVEY
FOR
THE PROJECT ON IMPLEMENTATION OF PILOT PROJECTS TO INTRODUCE ESCO FOR GOVERNMENT'S BUILDINGS
IN
THE ISLAMIC REPUBLIC OF IRAN

The Japanese Detailed Planning Survey Team (hereinafter referred to as "the Team"), was organized by Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Hiroshi Sumiyoshi, Director, Energy and Mining Division 2, JICA, from 15th February, 2013 to 21st February, 2013 for the purpose of discussing the concept and scope of the technical cooperation for "the Project on Implementation of Pilot Project to Introduce ESCO for Government's Buildings" (hereinafter referred to as "the Project").

During its stay in Iran, the Team had a series of discussions on the Project with the authorities concerned of the Office for the Improvement of Productivity and Economy of Electricity and Energy (OIPEEE), Ministry of Energy (MOE) of the Government of the Islamic Republic of Iran (hereinafter referred to as the "Iranian side").

As a result, the Team and the Iranian side (hereinafter referred to as the "both sides") agreed on the concept, scope of the Project and other relevant provisions to implement the project, which are confirmed in the documents attached hereto.

Tehran, March 9, 2013

Hiroshi Sumiyoshi Director Energy and Mining Division 2, Industrial Development and Public Policy Department Japan International Cooperation Agency Japan	Mohammad Ali Shafiezadeh General Director Office for the Improvement of Productivity and Economy of Electricity and Energy (OIPEEE), Ministry of Energy Iran

ATTACHMENT

1. PROJECT TITLE

Both sides agreed on the following project title:

"The Project on Implementation of Pilot Project to Introduce ESCO for Government's Buildings"

2. FRAMEWORK OF THE PROJECT AND RECORD OF DISCUSSIONS (R/D)

Based on the series of discussions between the Iranian side and JICA, the draft Record of Discussions (hereinafter referred to as "R/D") was prepared and agreed by both sides. After confirmation by JICA Headquarters and the Iranian side, the R/D will be signed by the Iranian side and JICA prior to the implementation of the Project. The draft R/D is subject to change according to the approval process by competent higher authorities.

The draft R/D is attached to this document.

3. OTHER RELEVANT ISSUES

(1) Signer of the R/D

Both sides agreed that the signatory will be informed by MOE to JICA after confirmation.

(2) Curriculum vitae of the Japanese experts

The Iranian side requested JICA to share the curriculum vitae of the Japanese experts prior to their dispatch to Iran.

(3) Input by MOE

The Iranian side requested JICA to amend or delete Appendix 1, II 6. (2) (j) in the R/D, as the item is not relevant to the Iranian context. JICA will confirm with related authorities on the acceptance of this amendment and will inform the results to the Iranian side.

(DRAFT)

RECORD OF DISCUSSIONS

ON

THE PROJECT ON IMPLEMENTATION OF PILOT PROJECTS TO INTRODUCE ESCO FOR GOVERNMENT'S BUILDINGS

IN

THE ISLAMIC REPUBLIC OF IRAN

AGREED UPON BETWEEN

MINISTRY OF ENERGY
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

Tehran, **, ***, 2013

Mr./Ms. XXX XXX Chief Representative Iran Office Japan International Cooperation Agency Japan	Mr./Ms. XXX XXX XXX Ministry of Energy Iran

In response to the official request of the Government of the Islamic Republic of Iran (hereinafter referred to as "GOI") to the Government of Japan, the Japan International Cooperation Agency (hereinafter referred to as "JICA") held a series of discussions with the Ministry of Energy of Iran (hereinafter referred to as "MOE") and relevant organizations to develop a detailed plan of the Project on Implementation of Pilot Project to Introduce ESCO[1] for Government's Buildings (hereinafter referred to as "the Project").

Both parties agreed the details of the Project and main points discussed as described in the Appendix 1 and the Appendix 2, respectively, and to request their respective governments to proceed with the necessary procedures for implementation of the Project.

Both parties also agreed that MOE, the counterpart to JICA, will be responsible for the implementation of the Project in cooperation with JICA, coordinate with other relevant organizations and ensure that the self-reliant operation of the Project is sustained during and after the implementation period in order to contribute toward social and economic development of Iran.

The Project will be implemented within the framework of the Note Verbales to be exchanged between the Government of Japan (hereinafter referred to as "GOJ") and GOI.

Appendix 1: Project Description
Appendix 2: Main Points Discussed

[1] ESCO: Energy Service Company

Appendix 1

PROJECT DESCRIPTION

I. BACKGROUND

Iran is one of the world's most eminent oil-producing countries, producing about 4 million barrels per day that accounts for 10.9% of oil deposits in the entire world. However, general energy consumption occupies 44% of general energy supply in Iran. Efficient utilization of energy is becoming the key issue in terms of securing the volume of oil for export that brings economic growth to the country. Energy consumption in the residential sector is the largest which accounts for 34%, followed by the transportation sector 28%, industrial sector 27% and commercial sector 7%. Particularly, energy consumption of buildings classified as the residential and commercial sector have increased constantly and reached about 40% of the energy generated by the supply side. Promotion of Energy Efficiency & Conservation (EE&C) in the building sector is now the most immediate priority mission of Ministry of Energy in Iran.

JICA implemented a development study for "Institutional Capacity Development on Energy Management in the Building Sector in the Islamic Republic of Iran" from 2010 to 2011 which supported the formulation of the roadmap and action plan to promote energy efficiency in buildings. In this study, it was identified that the ESCO framework is one of the effective measures for promoting EE&C in the building sector by a private sector initiative. In addition, it was clarified that the policies and legislations necessary to promote energy efficiency are being formulated such as the "Subsidy Reform Law" and the "Energy Consumption Pattern Reform Law" issued in Dec. 2010 and Mar. 2011 respectively.

Under this circumstance, GOI officially requested "the Project on Implementation of Pilot Project to Introduce ESCOs for Government's Buildings" to GOJ in July 2011. Under the support of JICA, this project is expected to provide knowledge and skills to promote ESCO system for Government buildings in Iran.

This project directly relates to the "Global Warming" program associated with the Japanese assistance policy. In addition, the promotion of energy efficiency in buildings contributes to economic competitiveness of domestic businesses through energy utilization and also contributes to climate change mitigation activities, thus, this project harmonizes with "promotion of domestic industries" and "environment protection" which are identified as specific assistance areas in Japan's country assistance program for Iran.

II. OUTLINE OF THE PROJECT

1. Title of the Project

Project on Implementation of Pilot Project to Introduce ESCOs for Government's Buildings

2. Overall Goal

Energy Efficiency and Conservation in the building sector will be promoted through the introduction of ESCO for Government buildings.

3. Project Purpose
The establishment of ESCO business model is promoted through the capacity development of the Iranian Government and ESCO association to promote ESCO businesses.

4. Outputs
Output 1: An institutional framework is established to promote ESCO business in Iran.
Output 2: The capacity of the Iranian Government and ESCO association is developed in order to introduce ESCO in Government buildings.
Output 3: The introduction of ESCO in Government buildings is considered and promoted.
Output 4: Policy recommendations are made for the introduction of ESCOs.

5. Activities
Activity 1-1: Support for the institutional framework, regulations and guidelines for the ESCO association.

Activity 2-1: Support to complete procedures and manuals for the introduction of ESCOs.
Activity 2-2: Support to complete contract models and formats for ESCOs.
Activity 2-3: Capacity development for awareness raising and training
Activity 2-4: Introduction of case studies on Japan's policies, legislations and finance mechanisms for energy efficiency in buildings.

Activity 3-1: Capacity development for ESCO companies.
Activity 3-2: Energy audits for Government buildings are implemented by ESCO companies.
Activity 3-3: Pilot projects for Government buildings are implemented by ESCO companies.
Activity 3-4: Monitoring of Pilot Projects.

Activity 4-1: Policy recommendations for the introduction of ESCOs.

6. Input
(1) Input by JICA
(a) Dispatch of Experts
[Short Term Expert] Team Leader / ESCO framework
[Short Term Expert] ESCO expert / Energy Efficiency Technology (heat)
[Short Term Expert] ESCO expert / Energy Efficiency Technology (electricity)
(b) Training
[Training in Japan] ESCO framework (policies, legislations and finance mechanisms)

Input other than indicated above will be determined through mutual consultations between JICA and MOE during the implementation of the Project, as necessary.

(2) Input by MOE

MOE will take necessary measures to provide at its own expense:

(a) Services of MOE's counterpart personnel and administrative personnel as referred to in II-7;
(b) Suitable office space with necessary equipment;
(c) Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the equipment provided by JICA;
(d) Means of transport for the JICA experts for official travel within Iran;
(e) Information as well as support in obtaining medical service;
(f) Credentials or identification cards;
(g) Available data (including maps and photographs) and information related to the Project;
(h) Running expenses necessary for the implementation of the Project;
(i) Expenses necessary for transportation within Iran of the equipment referred to in II-6 (1) as well as for the installation, operation and maintenance thereof; and
(j) Necessary facilities to the JICA experts for the remittance as well as utilization of the funds introduced into Iran from Japan in connection with the implementation of the Project

7. Implementation Structure

The Project organization chart is given in the Annex 1. The roles and assignments of relevant organizations are as follows:

(1) MOE

(a) [Assignment of personnel: Project Director]
General Director, Office for the Improvement of Productivity and Economy of Electricity and Energy (OIPEEE) will be responsible for overall administration and implementation of the Project.

(b) [Assignment of personnel: Project Manager]
Department of Energy Efficiency in Demand Side, Office for the Improvement of Productivity and Economy of Electricity and Energy (OIPEEE) will be responsible to support managerial and technical issues of the Project.

(2) SABA (IEEO: Iran Energy Efficiency Organization)
SABA will be the implementation organization of the Project.

(3) IFCO (Iranian Fuel Conservation Organization)

IFCO will be the co-implementation organization of the Project.

(3) JICA Experts

The JICA experts will give necessary technical guidance, advice and recommendations to MOE, SABA on any matters pertaining to the implementation of the Project.

(4) Joint Coordinating Committee

Joint Coordinating Committee (hereinafter referred to as "JCC") will be established in order to facilitate inter-organizational coordination. JCC will be held at least once a year and whenever deems it necessary. JCC will approve an annual work plan, review overall progress, conduct monitoring and evaluation of the Project, and exchange opinions on major issues that arise during the implementation of the Project. A list of proposed members of JCC is shown in the Annex 2.

8. Project Site(s) and Beneficiaries

Project Site: Tehran and other major cities

Beneficiaries: MOE OIPEEE, Ministry of Road and Urban Development (MRUD), SABA, IFCO, ESCO companies, Building owners and managers of pilot Government building sites

9. Duration

Tentative Schedule is shown in Annex 3.

The duration of the Project is 48 months. The commencement date shall be recognized from the first arrival of JICA Experts in Iran.

10. Reports

MOE OIPEEE and JICA experts will jointly prepare the following reports in English.

(1) Progress Reports for each implementation period as shown in Annex 3

(2) Project Completion Report at the time of project completion

11. Environmental and Social Considerations

(1) MOE agreed to abide by 'JICA Guidelines for Environmental and Social Considerations' in order to ensure that appropriate considerations will be made for the environmental and social impacts of the Project.

III. UNDERTAKINGS OF MOE

1.MOE will take necessary measures to:

(1) ensure that the technologies and knowledge acquired by the Iranian nationals as a result of Japanese technical cooperation contributes to the economic and social development of Iran, and that the knowledge and experience acquired by the personnel of Iran from technical training as well as the equipment provided by JICA will be utilized effectively in the implementation of the Project; and

(2) grant privileges, exemptions and benefits to the JICA experts referred to in II-6 (1) above and their families, which are no less favorable than those granted to experts and members of the missions and their families of third

countries or international organizations performing similar missions in Iran.

2. MOE will take necessary measures to:

(1) provide security-related information as well as measures to ensure the safety of the JICA experts;
(2) permit the JICA experts to enter, leave and sojourn in Iran for the duration of their assignments therein and exempt them from foreign registration requirements and consular fees.

IV. EVALUATION

JICA and the MOE will jointly conduct the following evaluation.

1. Terminal evaluation upon completion

V. PROMOTION OF PUBLIC SUPPORT

For the purpose of promoting support for the Project, MOE will take appropriate measures to make the Project widely known to the people of Iran.

VI. MUTUAL CONSULTATION

JICA and MOE will consult each other whenever any major issues arise in the course of Project implementation.

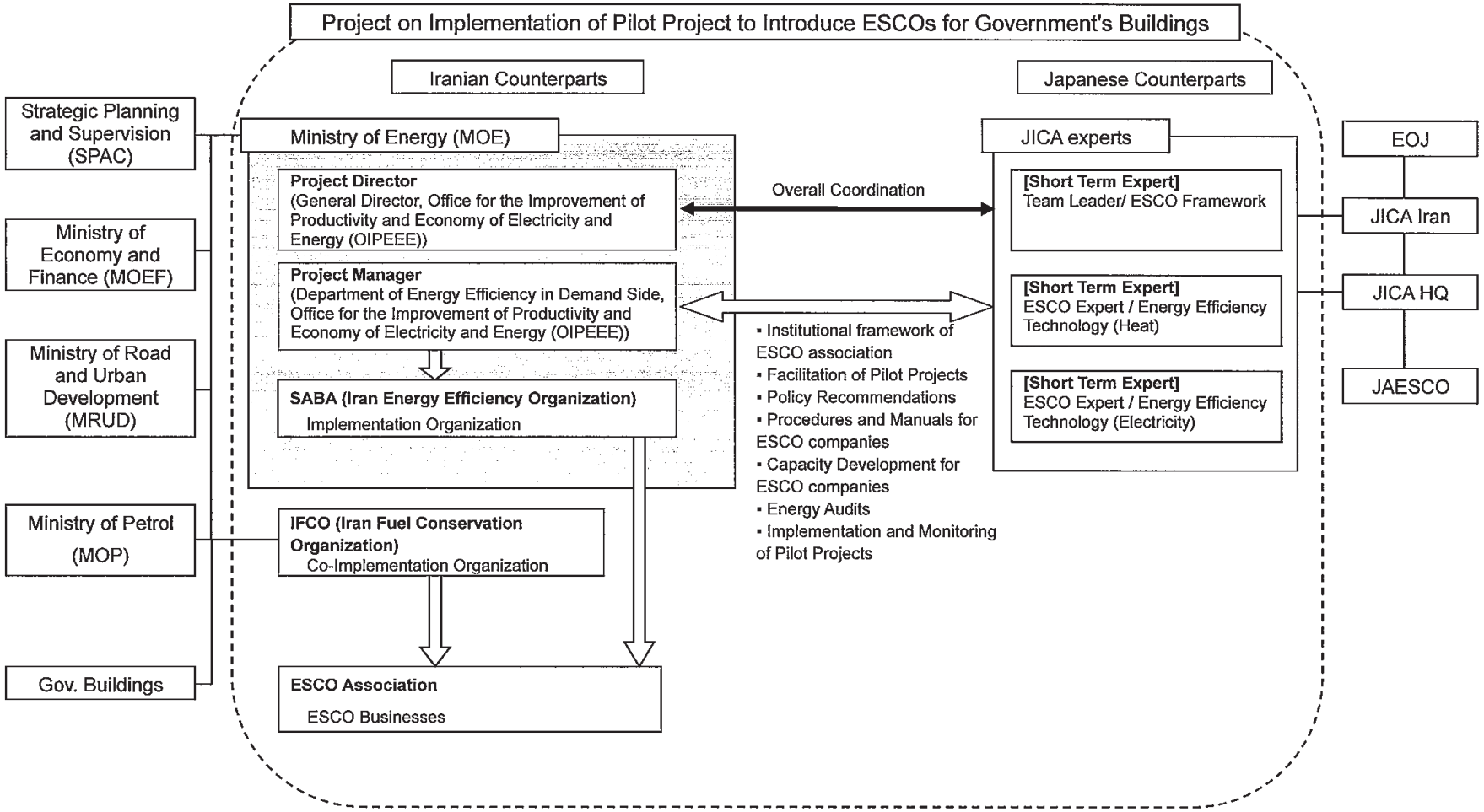
VII. AMENDMENTS

The record of discussions may be amended by the minutes of meetings between JICA and MOE.
The minutes of meetings will be signed by authorized persons of each side who may be different from the signers of the record of discussions.

Annex 1 Project Organization Chart
Annex 2 A List of Proposed Members of Joint Coordinating Committee
Annex 3 Plan of Operation

Project Organization Chart (Provisional)

ANNEX 1



EOJ: Embassy of Japan
JAESCO: Japan Association of Energy Service Companies

ANNEX 2

List of Proposed Members of Joint Coordinating Committee (JCC)
for
Project on Implementation of Pilot Project
to Introduce ESCOs for Government's Buildings

[Members]

1. **Ministry of Energy (MOE)**

- General Director, Office for the Improvement of Productivity and Economy of Electricity and Energy (OIPEEE)
- Project Manager, Department of Energy Efficiency in Demand Side, OIPEEE

2. **Presidential Deputy of Strategic Planning and Supervision (SPAC)**

3. **Ministry of Economy and Finance (MOEF)**

4. **Ministry of Petrol (MOP)**

5. **Ministry of Road and Urban Development (MRUD)**

6. **Iran Energy Efficiency Organization (SABA)**

7. **Iran Fuel Conservation Organization (IFCO)**

8. **ESCO Association**

9. **Japan International Cooperation Agency (JICA)**

- Chief Representative, Iran Office
- [Short Term Expert] Team Leader/ ESCO Framework
- [Short Term Expert] ESCO Expert / Energy Efficiency Technology (Heat)
- [Short Term Expert] ESCO Expert / Energy Efficiency Technology (Electricity)

[Observers]

10. **Ministry of Foreign Affairs (MOFA)**
11. **Embassy of Japan (EOJ)**

[END]

PLAN OF OPERATION (PROVISIONAL) ANNEX 3

Title: Project on Implementation of Pilot Project to Introduce ESCOs for Government's Buildings

Duration: July 2013 to June 2017 (Tentatively 4years)

Calender Year		2013				2014				2015				2016				2017	
Japanese and Iranian Fiscal Year		2012	2013			2014				2015				2016				2017	
Quarter		1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q
Activities																			
Preparatory Stage																			
Detailed Planning Survey		▬																	
Signing of R/D		▬																	
Output 1. An institutional framework is established to promote ESCO business in Iran																			
1-1.	Support for the institutional framework, regulations and guidelines for the ESCO association.			▬	▬	▬	▬	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪
Output 2. The capacity of the Iranian Government and ESCO association is developed in order to introduce ESCO in Government buildings.																			
2-1.	Support to complete procedures and manuals for the introduction of ESCOs.			▬	▬	▪	▪												
2-2.	Support to complete contract models and formats for ESCOs.			▬	▬	▪	▪	▪											
2-3.	Capacity development for awareness raising and training.					▬	▬	▪	▪	▪	▪	▪							
2-4.	Introduction of case studies on Japan's policies, legislations and finance mechanisms for energy efficiency in buildings.						▪	▪	▬	▪	▪	▪	▪						
Output 3: The introduction of ESCO in Government buildings is considered and promoted.																			
3-1.	Capacity development for ESCO companies.							▬	▬	▪	▪								
3-2.	Energy audits for Government buildings by ESCO companies.							▬	▬	▪	▪								
3-3.	Pilot projects for Government buildings by ESCO companies							▪	▪	▬	▬	▬	▬	▪	▪	▪	▪		
3-4.	Monitoring of Pilot Projects.									▬	▬	▬	▬	▬	▬	▬	▬	▬	▬
Output 4: Policy recommendations are made for the introduction of ESCOs.																			
4-1.	Policy recommendations for the introduction of ESCOs.			▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▬	▬
Reports									▲PR				▲PR						▲PCR
JCC				▲				▲			▲				▲				▲
Inputs																			
[Short Term Expert] Team Leader / ESCO framework				▬	▬	▬		▬		▬	▬		▬		▬				▬
[Short Term Expert] ESCO Expert / Energy Efficiency Technology (heat)					▬	▬		▬		▬	▬		▬		▬				▬
[Short Term Expert] ESCO Expert / Energy Efficiency Technology (electricity)					▬	▬		▬		▬	▬		▬		▬				▬
[Training in Japan] ESCO framework (policies, legislations and finance mechanisms)							▲					▲			▲				

PR: Progress Report
PCR: Project Completion Report
JCC: Joint Coordination Committee

Appendix 2

MAIN POINTS DISCUSSED

1. ESCO Association
   Both parties agreed that the ESCO association is fundamental for the success of the project. MOE OIPEEE shall be the focal point for the Japanese experts to coordinate with the ESCO association through SABA and IFCO.

2. Establishment of Government Fund and Financing Support Program
   Both parties agreed that the government fund and financing support program to promote ESCO framework shall be established by the related authorities of the Iranian side. The Japanese side acknowledges the importance of establishing finance incentives to introduce ESCOs in Iran. However, the financing environment in Iran is unique compared to that of Japan and out of scope from Japanese expertise. Therefore, the Japanese side will introduce case studies of the finance incentive schemes in Japan which are proved to be effective from empirical evidence. MOE shall take strong lead in coordinating with relevant ministries to realize these finance schemes. The necessary technology transfer will be implemented mainly as a training course in Japan.

3. ESCO Pilot Project
   Both parties agreed that the budget for the ESCO pilot project for Government buildings shall be allocated by the related authorities of the Iranian side. Short list of potential Government buildings for the ESCO pilot project shall be prepared by the Iranian side before the commencement of the project and provided to the JICA experts during their first mission. Both sides agreed to make effort to implement the pilot project as early as possible.

4. Dispath of Japanese Experts
   Additional input of Japanese experts shall be considered in accordance with the activities and shall be determined through mutual consultation between JICA and MOE during the project, as necessary.

5. Reports
   Each JCC member shall receive the reports mentioned in appendix 1. II.10. The number reports shall be considered accordingly.

6. Impacts to Climate Change Mitigation and/or Adaptation
   The Project is expected to contribute to mitigation of climate change by promoting energy efficiency to Government buildings through the ESCO framework.

[End]

Number 386/85011 Date: 8 March 2011

To: Dr. Ahmadinejad, the President of IRI

In executing article 123 of the Constitution, "Energy Consumption Pattern Reform Law" was issued in the open session of the Majlis (Parliament) on Wednesday dated 23/02/2011 and confirmed by the Guardian Council. It is announced by being attached to this letter.

From: Majlis Speaker- Ali Larijani

Energy Consumption Pattern Reform Law

Chapter 1- Generalities and definitions

Article 1- The purpose of approving this law, is to manage and optimize energy usage in a way that it guarantees to prevent energy loss, increase it's efficiency and productivity, better utilization, help sustainable development and environmental protection without reducing the level of national production and social welfare.

Article 2- The definition of the terms used in this law is explained as follows:

a) Energy carriers: natural substances and elements both fossil and non fossil, or their products like petroleum, oil products, natural gas, electricity, coal , and renewable energy sources whose hidden energy can be used in different ways by special operations.

b) Fuel: Combustible materials like petroleum, oil products and natural gas, coal and charcoal (except nuclear fuel)

c) Energy consuming equipments: including equipment, machinery and goods which are being used in different sectors including industry, agriculture, business, household, transportation, public, and other sectors, too and are consumers of energy carries or energy converters.

d) Energy consuming process: the set of operations that lead to production or conversion (transformation) of goods or providing specific services and energy carriers are used during these operations.

e) Energy consuming system: A set of manufacturing, industrial and service equipments and processes in which energy is used, converted or transferred.

f) Energy consumption label: a tag containing data related to technical properties and criteria such as quantity, consumption, and efficiency of energy in each energy-consuming commodity and their comparison to the approved standards and can be installed on the commodities.

g) Technical standards and specifications: Standard for energy consumption, efficiency, intensity and other technical properties in all energy consuming equipments, processes and systems in a way that is associated with energy.

h) The best criteria for energy consumption management: Set of technical properties related to energy consumption which contains a higher quality than the standard and less energy consumption than previously modified limit for giving special encouragements in

technical standards and specifications according to the legislations related to legal criteria for energy consumption standard.

i) Energy audit: the series of technical and economical studies and activities that lead to recognition and assessment of circumstance, amount, and places of energy carriers consumption, energy losses and related effective factors and present methods of promoting consumption efficiency level of energy carriers and methods of applying energy management in factories and industrial processes, buildings and machinery and equipments.

j) Load management: the series of engineering and management studies and activities that lead to energy consumption reduction in the time period of consumption peak or transference and distribution of it to other hours or seasons and consequently load curve leveling.

k) Energy recycles: take benefit of wasted energies in energy consuming systems in a way that cause total energy efficiency increase.

l) Combined Heat and Power Generation (Cogeneration): in this technology, thermal losses resulting from fuel conversion will be recovered to mechanical or electrical energy and used for thermal application of industrial, commercial, residential, agricultural and public centers and the total efficiency of the system will considerably increase.

m) Distributed Cogeneration of Heat and Power: in many cases, combined generation of power and heat is done in small or moderate units in the consumption place that will be used without the need to transfer heat. This method has become very popular and common because of heavy costs of transferring heat and developing small-scale generators.

n) District Heating and Cooling: distributing thermal and cooling energy from a central source of energy conversion in order to supply thermal and cooling needs in a region.

o) Energy saving ID: a report form including method and amount of energy saved by units, systems, and processes of an industrial unit.

p) Intelligent Transportation: Electrical, telecommunication and informational technologies in vehicles and transportation substructures whose application leads to increase safety, efficiency, facilitate transportation and decrease traffic density.

q) Combined transportation: Connecting different systems of transporting people and goods in a way that it is possible to change transportation method efficiently.

r) Specific energy consumption (energy intensity): Energy consumption rate per one produced unit (its economic value). This term is used in economy in the whole country or its sectors and parts.

s) Target industrial buildings and units: Industrial buildings and units that are liable to energy management regulations.

t) Energy management department: A department in industrial institutes that undertakes operations such as recognizing consumption amount and method for energy carriers, recording related data, and specifying and implementing necessary strategies for efficient use of energy.

u) Energy consumers: All real and legal entities in governmental or private sectors including producers (manufacturers), sellers, and users of energy and energy consuming equipments and processes which directly use energy carries or have an effect on them.

v) Green building: A building that has the least damage to environment and the best interaction with its surroundings. These buildings are liable to observe specific regulations in site selection, manufacture system design, implementation, maintenance, operation, and recovering systems.

w) Energy service company (ESCO): A service-engineering company that design, implement, and provide financial support for plans related to improving energy efficiency in all energy consuming sections. This company guarantees to reach a certain level of energy efficiency and takes the responsibility of all project's risks and get its portion (benefit) from saving energy.

Chapter 2: Basic policies and strategies:

Article 3- Determining, modifying and revising the basic policies on each area of energy consumption and production will be done by a work group consist of MOE and MOP ministers and the Presidential Deputy of Planning and Strategic Supervision.
Article 4- Suitable executive strategies for support and encouragement for promoting study and development system about new technologies through providing required research credits up to the level of making a sample and commercialization will be codified by MOE and MOP through annual budgets and approved by council of ministers.

Chapter 3- Structure and constitutions:

Article 5- Policy making in country's energy sector including renewable energies and efficient production and consumption of different energy carriers is only undertaken by the Supreme Energy Council.

Note- The structure of the supreme council should be reformed in a way that it is possible for the parties for energy supply and demand to attend council's meetings regularly and do joint policy-makings in the energy sector.

Article 6- MOE, MOP, MOA (Ministry of Agriculture) and MOIM (Ministry of Industry and Mines) are bound to identify and provide all technologies required in specialized area of energy supply and demand in the next 20 years within their specialized realm of activity and make the possibility of design and improvement of them to be applied by local manufacturers and producers.

Article 7- Modification of local organizations and constitutions for promoting research and development system mentioned in article 4 of this law, will be proposed by MOE and MOP in the framework of five-year development plan and State Services Management Law, within 6 months after the issuance of this law and it will be approved by the council of ministers.

Article 8- MOE can take measures to establish an organization with independent legal personality in the framework of five-year development plan and State Services Management Law in order to promote efficiency and using renewable resources as much as possible. The statute and responsibilities of this organization will be determined by MOE and it will be presented to Majlis (Parliament) within 6 months after the approval of this law by the confirmation of the council of ministers. MOE can transfer the budget codes for the above-mentioned affairs from affiliated organizations to this new organization.

Article 9- In order to manage the demand and implement the strategies related to fuel conservation in different sectors, help development of applying new technologies for converting energy in different consumption sectors, reduce long-term costs resulted from energy demand, codify criteria, standards and instructions related to EE & C, replace economically the energy carriers by developing the application of local energy capacities and renewable energies, MOP is obliged to recommend modifications in the statute and responsibilities of IFCO and propose it to the council of ministers for approval.

Chapter 4- Energy consumption Standard and criteria for energy users, processes, and energy consuming equipments

Article 10- MOE and MOP are bound to specify the monthly energy consumption pattern for building, commercial and public sectors and industries' specific energy consumption (including petroleum and power industries), mines, agriculture, mineral industries and water pumping within the framework of annual budget and targeting subsidies law with the cooperation of related ministries and the Institute of Standard and Industrial research of Iran (ISIR) according to the climatic conditions, consumption culture and habits, technologies used in industrial, agricultural and mining sectors and they should get the approval of the council of ministers.

Note – The subsidy considered for the consumptions within the pattern will be compensated by the discriminative rate for the users with over-pattern consumption.

Article 11- The obligatory energy standards and criteria for energy consuming machinery and equipment and industrial, mining, and agricultural processes and also quality standard for all kinds of consuming fuels and power that producers and importers are bound to observe will be codified and reviewed by a workgroup comprises of representatives of MOE, MOP, Presidential Deputy of Strategic Planning and Supervision, Institute of Standard and Industrial research of Iran (ISIRI), Environmental Protection Organization and other related ministries and it should be approved by the council of ministers.

Note- The responsibility of the work group in the field of fuel and combustion is by MOP and in the field of electrical energy is by MOE.

Article 12- ISIRI is bound to take necessary measures and anticipate the arrangements required for execution of energy labeling standards for electrical energy consuming equipments with the cooperation of MOE (in the field of electricity and heat) and MOP (in the field of fuel).

Article 13- All manufacturers and importers of energy consuming equipments are obliged to take necessary measures to provide and set the energy labels on the product before packing based on technical standards and properties imparted by ISIRI. It is forbidden to distribute and sell energy consuming equipments without labeling. ISIRI and Ministry of Commerce are obliged to control and treat offending sellers and distributers according to the law.

Article 14- In order to persuade people to use equipments and processes with lower energy consumption and less environmental pollution, financial motivations will be provided for them through financial resources mentioned in article 73 of this law and the credits anticipated in the annual budget bills. MOE and MOP will prepare the executive regulations within months after approval of this law and it should be approved by the council of ministers.

Article 15- All administrative organizations, institutions, agencies, governmental industrial units and companies and also military and police forces are obliged to purchase their needed equipments and machinery according to the best levels of energy consumption. The executive regulations for this article will be prepared by the Supreme Energy Council observing the note under article 5 of this law and with the observance of the law on maximum use of productive, industrial and executive technical and engineering potentials of the country in running the projects and creating facilities in order to issue service approved on 2 March 1997 and then get the approval of the council of ministers. All related ministries and organizations must supervise the proper observance of this article.

Article 16- Allocation of any credit for development and rebuild of industries is subjected to the observance of technical standards and specifications and also the environmental measures and will be done after getting necessary permits from ISIRI.

Article 17- Based on the joint proposal of Ministries of Energy, Petroleum, Economy and Finance, and Presidential Deputy of Strategic Planning and Supervision and in order to support ESCOs, the council of ministers will approve necessary regulations and instructions within 6 months after approval of this law in such a way that it provides enough motivations for establishment and development of such companies in the country. The financial resources required for execution of this law will be provided from what mentioned in article 73 of this law. Also the administrative organizations mentioned in article 4 of the national services law can create a commitment from the amount of saved energy for making contracts on energy efficiency and take measures based on credit resources mentioned in article 73 and resulted energy savings.

Chapter 5- Energy users in the building sector and urban development

Article 18- In execution of the Law for Building Engineering and Control System, Ministry of Housing and Urban development (MUHD) is obliged to provide codes and regulations on energy saving in buildings with the orientation toward green building and also urban development based on the mentioned pattern with the cooperation of MOE, MOP, Home Office, and Presidential Deputy of Strategic Planning and Supervision within 1 year after approval of this law and get the approval of the council of ministers.

The administrative regulations including technical specifications and criteria for energy consumption of green building will be codified by the workgroup mentioned in article 11 within at most 6 month after approval of this law in such a way that it covers all specific regulations in designing and construction from the view point of energy and environment management such as pollution decrease and the need for the minimum amount of non-renewable energies.

Note - The consumption pattern for power and natural gas per each square meter of building will be approved by Supreme Energy Council with the joint proposal of MOE, MOP, and MHUD. Consumption rates higher than the pattern will be bound to at most 100% cost increase. The taken funds will be deposited to the country's treasury and spent based on subsidies targeting law and annual budget law and according to what mentioned in article 73 of this law.

Article 19- The issuance of the project-end certificate for buildings by municipalities or other related institutions depends on the observance of regulations and rules mentioned in article 18 of this law.

Article 20- All public and private institutions are obliged to install controlling systems required for consumption of different energy carriers in their office buildings which correspond to rules and regulations of article 18 of this law within 5 years after the approval of this law.

Article 21- All administrative and public organizations are bound to run energy audit in related buildings in order to implement and control Energy Management System and educate their staffs.

Article 22- ISIRI is obliged to take measures for preparing and codifying standards for construction materials with the priority of energy consuming items with the cooperation of MHUD and get the approval of the workgroup mentioned in article 11 of this law.

ISIRI is bound to communicate these standards and supervise their proper implementation.

Article 23- Municipalities and other institutions in charge of issuing construction licenses and control building execution and other real or legal persons mentioned in article 34 of the Law for building Engineering and Control System approved on 13 March 1996 are

responsible for implementing this chapter of the law and administrative organizations and related institutions will be bound to cooperate in this regard. MHUD will give a monitoring report of related organizations' performance to Majlis (Parliament) and council of ministers each year.

Chapter 6: Energy users in industries

Article 24- All energy users with an annual fuel consumption over 5 million cubic meter gas or liquid fuel equivalent to it and an electrical power demand over 1 Megawatt are bound to run energy audit and implement EE&C alternatives in order to achieve the criteria mentioned in article 11 of this law trough establishing a energy management unit via energy conservation or by using facilities of the private sector or without extending governmental organizations.

Article 27- MOE is bound to purchase the surplus generated power according to Article 44 of this law, from all industries, organizations and units which have access to MOE electrical grid and can install power generation systems such as CHP, expansion turbines and/or stand alone units, and can generate power according to MOE standards,.

Chapter 9- Producers and Distributors of Energy

Article 44- MOE, through its affiliated companies, is obliged to guarantee the purchase of power from its producers at place of delivery and to the capacities of power generation and for this purpose make 5-year (or longer) contracts according to the followings:

a- Connecting generators mentioned in this article to the grid will be done without the costs of establishing electricity branches.

b- In the case of an emergency outage or outage of maintenance, established branch will be used for supplying joint power up to the generator's capacity level by the assessment of MOE without paying the branch fee.

c- The users who start to install generator at consumption location, will be exempted from the priority of electricity cut when there is shortage in the nationwide grid.

Article 45- MOE and MOP are obliged to provide facilities and funds which are publicly announced for the industrial, building, agricultural and public units which take measures for CCHP at the consumption location.

Article 48- MOE is bound to support formation of non-governmental companies for selling and distributing heat and expanding them across the country in order to buy recovered heat from power plants and to sell it to industrial and construction units.

Article 49- MOE has the duty of planning for creation, expansion or reformation of gas distributing network in every region in accordance with expansion of heat distribution network.

Article 50- In order to align the behavior of power generating firms with national interests, fuel will be sold to the power plants with the average annual power and heat efficiency of 30% and less, at the price of 20% more than what determined in Subsidy Rationalization Law. For the power plants with the average annual power and heat efficiency of 70% and more, this price will be 20% less than what determined in Subsidy Rationalization Law. Other power plants will pay a proportionate amount as a fuel cost that reduces by increase of their efficiency and according to related regulations. The additional charges received will be deposited into General Revenue Account in The National Treasury after deducting the discounted amounts in order to be spent for development of heat recovery from power plants losses.

Article 51- MOE and MOP are obliged to provide financial supports mentioned in this law, which is publicly announced, for the projects related to increasing energy efficiency proportionate with the increased efficiency rate.

a- MOP, with the cooperation of MOE, is responsible to support effectively research, investment, development and expansion of CCHP through non governmental sectors.

b- Ministry of Industries and Mines is bound to take measures in order to expand country's local technical knowledge and self-reliance for providing CCHP co-generation equipments with the support of related industrial and research centers.

Within 3 month after the ratification of this law all of the executive criteria and regulations of this article should be ratified by the council of ministers after being proposed by MOP, MOE and Ministry of Industries and Mines.

Article 52- In order to promote efficiency, increase safety of providing energy, and for broad participation of non-governmental sector in supplying energy,

a- MOP, with the cooperation of MOE, is bound to effectively support researches, investments, promotion and development of Combined Cooling, Heating & Power Generation (CCHP) units via non-governmental sector.

Article 60- The government is obliged to take measure to reduce specific energy consumption of the industrial, agricultural, public transportation, commercial and household sectors in each year and give annual reports.

Chapter 10- Renewable and Nuclear Energies

Article 61- In order to support outspread use of renewable energy sources such as, wind, solar, geothermal, small hydropower (up to 10 megawatt), sea and biomass energies (including waste and remaining from agriculture and forest, municipal waste and waste water,

industrial & cattle waste, biogas and biomass) and with the purpose of facilitating and aggregating these affairs, MOE is bound to make long-term contracts for guaranteed purchasing with non-governmental producers of power from renewable sources through related organizations.

Note 1- The price and terms of purchasing power generated from renewable energy sources will be determined by MOE's proposal and approved by the council of ministers.

Note 2- MOE affiliated companies including regional electricity companies and distribution companies are obliged to deliver and purchase power from the respective organization with the coordination of Iran Power Network Management Company.

Note 3- The financial resources required for guaranteed purchasing of power produced from renewable energy sources will be provided from value of saved fuel according to imported liquid fuels and export prices of gas and the benefits resulted from non-production of pollutants and environment protection per power generated in such power plants and will be paid to MOE.

The administrative regulations for this article will be proposed by MOE and MOP within 6 months after approval of this law and then it should be approved by the council of ministers.

Article 62- In order to promote economic application of renewable energy resources in systems separate from the electrical grid, such as solar water heaters, solar bath, wind pumps, wind turbine, photovoltaic systems, extraction of gas from biomass resources and cost saving for providing and distributing fossil fuels, MOE and MOP are bound to declare their support publicly and provide and pay funding from their annual budgets or the sources mentioned in article 73 of this law.

Chapter 11- Training and awareness

Article 64- Ministries of Education and Training and Science, Research and Technology are obliged to insert energy management courses in all educational levels and related majors with the cooperation of MOE and MOP and upgrade the study material.

Article 65- Ministries of "Education and Training" and "Labor and Social Affairs" are bound to prepare and implement the curriculum for related technical and vocational courses, effective training on energy efficiency actions according to MOE and MOP opinion.

Article 66- Ministry of Science, Research and Technology is bound to create and expand majors related to energy management in M.Sc. and PhD levels in the universities and also include energy management course in the higher diploma and B.Sc. levels of engineering and other related majors within 1 year after the approval of this law.

Article 67- Ministry of Culture and Islamic Guides, IRI Broadcasting Organization, Islamic Development Organization and municipalities are obliged to consider dissemination rational

consumption of energy and modification of consumption behavior and pattern in planning and implementation of cultural and promotional activities.

Note- Advertising through TV commercials depends on observance of the criteria and technical specifications of energy consuming mentioned in article 11 of this law.

Article 68- MHUD is bound to prepare study materials required for applied trainings on EE&C measures in buildings and mechanical and electrical installations, and hold training courses for engineers, technicians and experimental architects working in the building sector and consider these items in the competency determination tests.

Article 69- MOE is obliged to define and hold awareness courses and applied trainings on general and specialized energy management for electricity and heat for the energy managers of the industrial units and the graduates mentioned in article 64 and 66 of this law in the Industry Energy Management National Training Center and give trainees certificates with the cooperation of Ministry of Industries and Mines.

Note- All industrial units referred to in article 24 of this law must appoint their energy managers with the priority of the graduates mentioned in article 64 and 66 of this law among the ones who have the certificates mentioned in this article.

Article 70- The Deputy of Strategic Planning and Control of the presidency is bound to get energy sector data (oil, gas, products and electricity) from MOE and MOP every 6 months and announce them to the public through media.

Chapter 12: other regulations

Article 71- MOE and MOP shall supervise the precise execution of this law by proposing and issuing required instructions and report the results to related ministers and institutions.

Article 72- The ministries and organizations who are responsible for sub-categories of energy supply and consumption, are obliged to provide and implement energy efficiency solutions with cooperation of the Deputy of Strategic Planning and Control of the presidency.

Article 73- In order to support the implementation of strategies to promote EE&C within the framework of the objectives of this law, MOE and MOP are permitted to supply necessary financial resources from the savings resulting from implementation of this Law, the annual budgets and internal funding resources of state-owned affiliated enterprises. The amount of financial facilities will be determined by the Supreme Energy Council.

Article 74- Ministry of Petroleum and Energy and other ministries and agencies responsible in this Law are bound to annually send report on the effectiveness of policies and measures related to energy saving separately with respect to the energy carriers and the energy-consuming economic sectors to the Department of Strategic Planning and Control of the

presidency in order to be concluded and reflected to the council of ministers and Majlis (Parliament).

Article 75- The government is obliged to:

a- anticipate funds and credits required for implementation of the tasks mentioned in this law in the annual budget bills according to each case and in the form of organizations' annual budgets, administered funds, internal resources of governmental companies or making commitment local and foreign financial facilities and its pay-back from resulted saving rates.

b- provide necessary regulations that ensure the implementation of rules and tasks mentioned in this law except in cases that is stipulated in the law within 6 months and get the approval of council of ministers for that.

This law including 75 articles and 20 notes was approved in an open session in Majlis (Parliament) on 23 February 2011 and confirmed by the Guardian Council on 1 March 2011. (Ali Larijani, the Speaker of Majlis)


ジャイカ
JICA