



Project Identification Form (PIF) entry – Full Sized Project – GEF - 7

## Promoting Carbon Reduction Through Energy Efficiency (EE) Techniques in Baghdad City

### Part I: Project Information

**GEF ID**

10392

**Project Type**

FSP

**Type of Trust Fund**

GET

**CBIT/NGI**☐ CBIT☐ NGI**Project Title**

Promoting Carbon Reduction Through Energy Efficiency (EE) Techniques in Baghdad City

**Countries**

Iraq

**Agency(ies)**

UNDP

**Other Executing Partner(s)**Ministry of Health and Environment Ministry of Housing, Construction. Municipalities  
and Public Works Ministry of Electricity**Executing Partner Type**

Government

**GEF Focal Area**

Climate Change

**Taxonomy**

Focal Areas, Sustainable Development Goals, Climate Change Mitigation, Climate Change, Technology Transfer, Energy Efficiency, United Nations Framework Convention on Climate Change, Paris Agreement, Influencing models, Convene multi-stakeholder alliances, Demonstrate innovative approaches, Transform policy and regulatory environments, Strengthen institutional capacity and decision-making, Stakeholders, Private Sector, SMEs, Large corporations, Individuals/Entrepreneurs, Beneficiaries, Local Communities, Type of Engagement, Consultation, Information Dissemination, Participation, Partnership, Communications, Education, Behavior change, Public Campaigns, Awareness Raising, Civil Society, Academia, Non-Governmental Organization, Trade Unions and Workers Unions, Gender Equality, Gender Mainstreaming, Gender results areas, Capacity Development, Knowledge Generation and Exchange, Participation and leadership

**Rio Markers****Climate Change Mitigation**

Climate Change Mitigation 1

**Climate Change Adaptation**

Climate Change Adaptation 0

**Duration**

60 In Months

**Agency Fee(\$)**

293,741

**Submission Date**

10/11/2019

## A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
CCM-1-3	GET	3,092,009	23,000,000
Total Project Cost (\$)		3,092,009	23,000,000

## B. Indicative Project description summary

### Project Objective

To promote a low carbon development through the creation of an enabling Energy Efficiency strategy, programs and applications in Baghdad with a focus on the building sector.

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
1. Enabling policy, institutional, and legislative framework to support the development of EE programs and applications in the building sector	Technical Assistance	1. Policy for EE in the building sector strengthened and set up in addition to a regulatory and institutional framework to foster low GHG development	<p>1.1: Appropriate and enabling policy, regulatory and institutional framework to catalyze EE buildings deployment in Iraq including the establishment of an EE unit.</p> <p>1.2: Development of National Energy Efficiency Action Plan (NEEAP) in Iraq to roll-out EE development with a focus on the building sector.</p> <p>1.3: Financial measures and incentive mechanisms identified to promote EE buildings investments including attracting the engagement of the banking sector</p> <p>1.4: Inventory mechanism and database management system for national energy balance, detailed consumption statistics and related Green House Gas (GHG) emission in the building sector to follow and monitor EE programs.</p>	GET	500,000	250,000
2. Strengthening individual and institutional national capacity development, expertise, building codes & standards and	Technical Assistance	2. Strengthened capacity on EE buildings knowledge and expertise in Iraq.	2.1: Training on EE buildings policy, strategy, programs and applications targeting decision makers, technicians and national experts. This will include strengthening the capacity of targeted targeting institutions that will follow up the enforcement of the Iraqi building code. This output will also conduct trainings on EE in building targeting	GET	750,000	500,000

technical  
knowledge in the  
EE buildings  
sector.

students, technicians, building inspectors  
and relevant civil engineer and architects.  
This will constitute a training of trainers.

2.2: Development of a sustainable Certified  
Energy Management and Building Auditors  
Programs. Energy managers will be  
responsible for the inspection and  
optimization of energy consumption and  
performance of buildings.

2.3: Design of an enforcement policy and  
strategy for the Iraqi building code in line  
with regional and international best practices  
and with respect to Iraq conditions and  
environment. This will include defining  
building energy performance standards and  
code (Thermal insulation code).

2.4: Set up an institutional mechanism to  
revise and update building energy  
performance standards regularly, including  
enforcing EE measures in building.

2.5: Knowledge Management and best  
practices exchange missions with relevant  
regional or international countries with  
advanced experience in EE buildings  
deployment. This will include M&E. This will  
also include the dissemination of EE in  
building practices, programs and building  
energy code.

2.6: Marketing and awareness campaigns and events to promote energy efficient applications and programs and increase decision makers' commitment.

3. Establishment of energy efficiency center	Investment	3. EE and sustainable measures are advanced and known for selected building types and equipments, and replicated in building investment	<p>3.1: Set up an energy efficiency center that will be a demonstration project for best practices of energy efficiency in building.</p> <p>3.2: Creation of capacity building unit in the energy efficiency center.</p> <p>3.3: Support implementing of testing facilities to check and measure energy consumption behavior in the building sector.</p> <p>3.4: Upgrade, enhance and certify one national testing laboratory and equip the laboratory with testing facilities for solar equipments.</p>	GET	1,694,771	21,950,000
Sub Total (\$)					2,944,771	22,700,000
Project Management Cost (PMC)						
GET					147,238	300,000
Sub Total(\$)					147,238	300,000
Total Project Cost(\$)					3,092,009	23,000,000

**C. Indicative sources of Co-financing for the Project by name and by type**

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Government	Ministry of Construction and Housing (MoCH)	Grant	Investment mobilized	1,000,000
Government	Ministry of Construction and Housing (MoCH)	In-kind	Recurrent expenditures	2,000,000
Government	Ministry of Electricity (MoE)	Grant	Investment mobilized	1,000,000
Government	Ministry of Electricity (MoE)	In-kind	Recurrent expenditures	2,000,000
Government	Ministry of Health and Environment (MoHEN)	Grant	Investment mobilized	1,000,000
Private Sector	Baghdad Renewable Energy and Sustainability Center (BRESC)	Equity	Investment mobilized	15,000,000
GEF Agency	UNDP	Grant	Recurrent expenditures	1,000,000
<b>Total Project Cost(\$)</b>				<b>23,000,000</b>

**Describe how any "Investment Mobilized" was identified**

Investments mobilized were identified following close consultations with key Government of Iraq stakeholders. In addition:

- Government co-financing will also come from the MoE, MoCH, MoHEN in the form of both cash and in-kind contributions. Their support and contribution will relate to policy and regulatory framework development and enforcement, EE in building knowledge enhancement and capacity development. The related ministries will also make in-kind contributions for all project components related to project monitoring and oversight.
- Co-financing from the MoE and MoCH will include costs associated with their participation in creation of the Energy Efficiency Centre and Certification Laboratories in addition to the implementation of sustainable capacity development EE programs in the Building Sector.
- Private sector co-financing represents their participation in the voluntary commitment program and in the endorsement and implementation of the project outputs. BRESC and its partners are planning to invest 100 million USD in EE for the coming 5 years were a minimum of 15 million USD will be spent on EE in buildings

## D. Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
UNDP	GET	Iraq	Climate Change	CC STAR Allocation	3,092,009	293,741	3,385,750
Total GEF Resources(\$)					3,092,009	293,741	3,385,750



**E. Project Preparation Grant (PPG)**

PPG Amount (\$)

150,000

PPG Agency Fee (\$)

14,250

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
UNDP	GET	Iraq	Climate Change	CC STAR Allocation	150,000	14,250	<b>164,250</b>
Total Project Costs(\$)					<b>150,000</b>	<b>14,250</b>	<b>164,250</b>

## Core Indicators

### Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO <sub>2</sub> e (direct)	78300	0	0	0
Expected metric tons of CO <sub>2</sub> e (indirect)	156600	0	0	0

### Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO <sub>2</sub> e (direct)				
Expected metric tons of CO <sub>2</sub> e (indirect)				
Anticipated start year of accounting				
Duration of accounting				

### Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO <sub>2</sub> e (direct)	78,300			
Expected metric tons of CO <sub>2</sub> e (indirect)	156,600			
Anticipated start year of accounting				
Duration of accounting				

Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
Target Energy Saved (MJ)	563,760			

Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)
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Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
<b>Female</b>	25,000			
<b>Male</b>	25,000			
<b>Total</b>	50000	0	0	0

## Part II. Project Justification

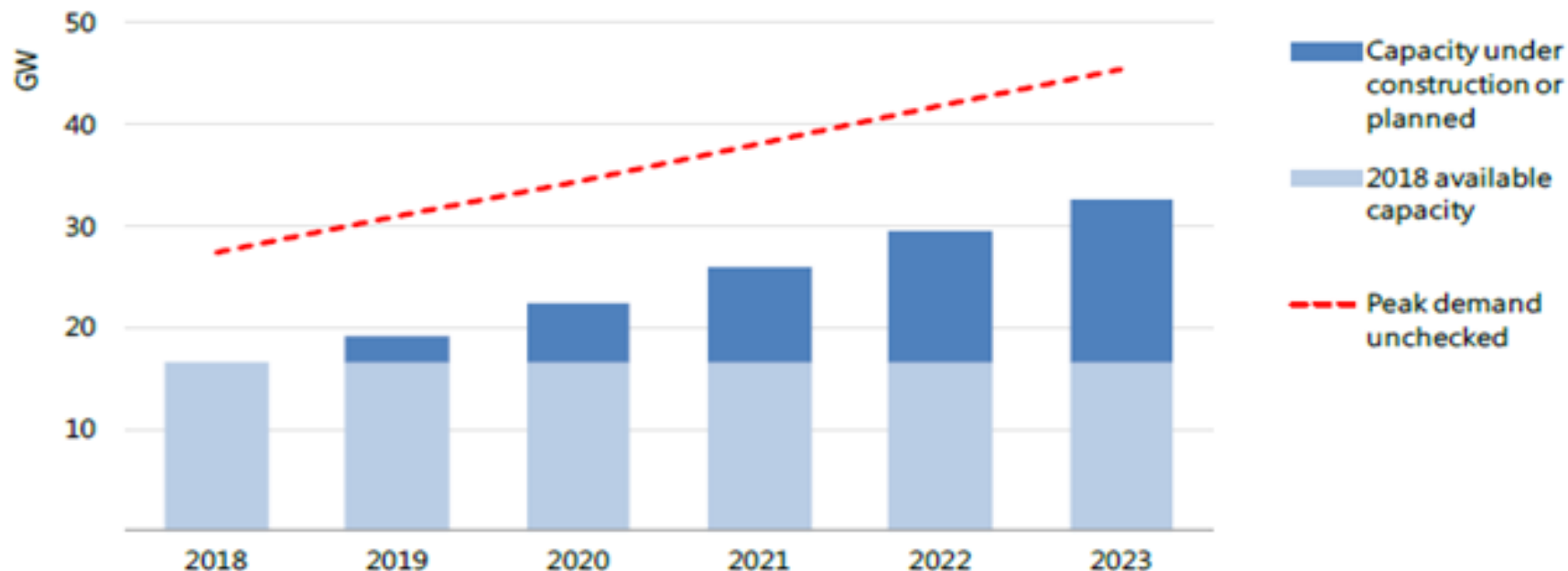
### 1a. Project Description

#### **1a. Project Description. Briefly describe:**

##### **1) The global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description)**

Iraq is a large country located in the Middle East and bordered by Syria, Jordan, Saudi Arabia, Iran, Turkey and Kuwait. Its main natural resource is oil extraction but has untapped resources especially in the agriculture sector. According to the 2018 UNDP Human Development Report (HDR), Iraq is ranked 120th in the Human Development Index, out of 189 assessed countries, the lowest in the Gulf region except Syria and Yemen. This is due to continuous political instability and wars in the past 3 decades. However, Iraq is still classified as a Middle-Income Country (MIC). The total population of the country is estimated at 37 million inhabitants (2016), and its surface at about 438,317 km<sup>2</sup>. Roughly 70% of the population lives in urban areas, against 30% in rural areas. Despite the importance of oil and gas resources in Iraq, that account for almost 60% of gross domestic product (GDP), 99% of export earnings and 90% of government revenues (World Bank, 2017), electricity sector in Iraq faces significant challenges as a result of the political instability and crisis over the past years.

Electricity generation increased by almost 90% between 2012 and 2018 and available capacity has expanded by 8 GW. However, this has not been accompanied by improvements in power grid infrastructure or reductions of losses which are among the highest levels in the world that reach 50 to 60%. In parallel, peak demand has increased by 80% and continued expansion in power generation capacity was not sufficient to solve the problem of power shortages in Iraq and to bridge the gap between the peak demand and available supply (Figure 3).

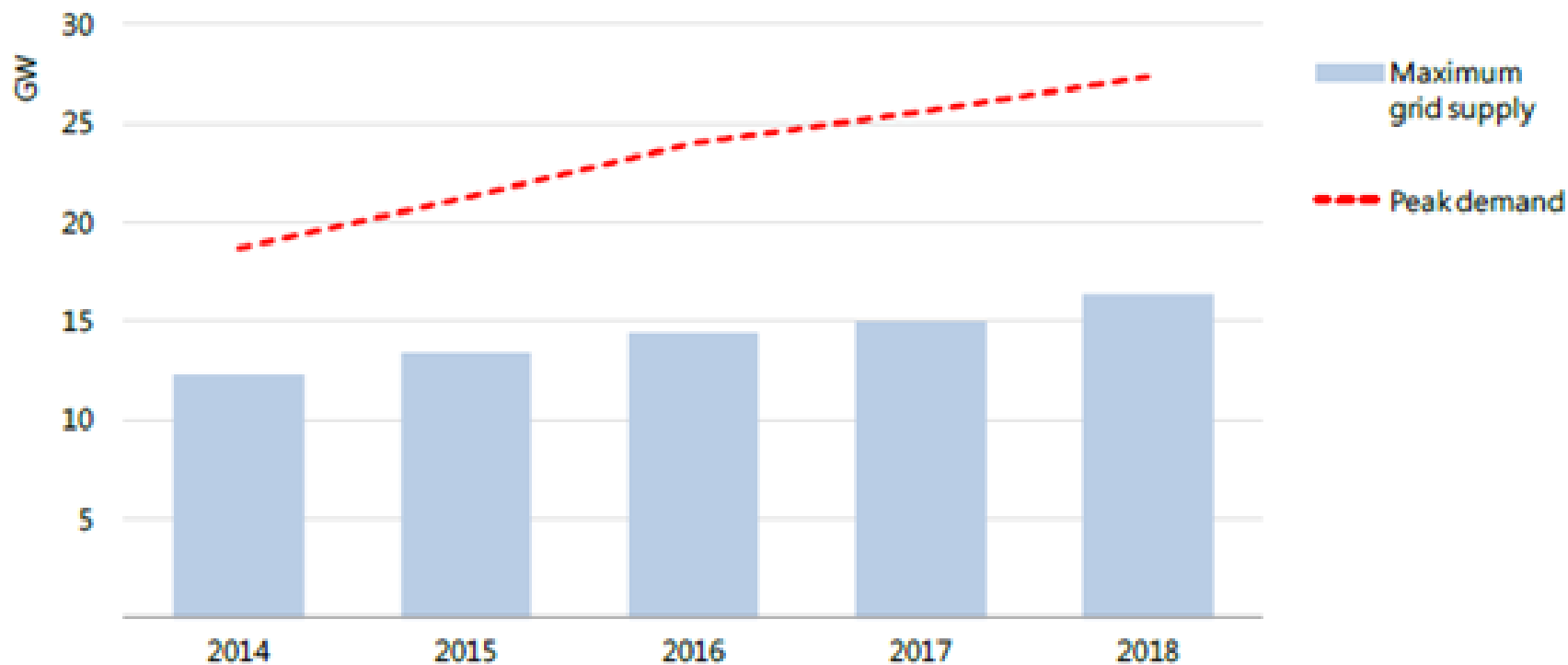


*Projected demand and supply, Energy sector in Iraq, IEA, 2019*

Power cuts are common and reflect the weakness of the transmission and distribution networks infrastructure. The gap between supply and peak demand is becoming very important during the last years particularly in the summer months and several hours of electricity outage are frequent in Iraq's governorates.

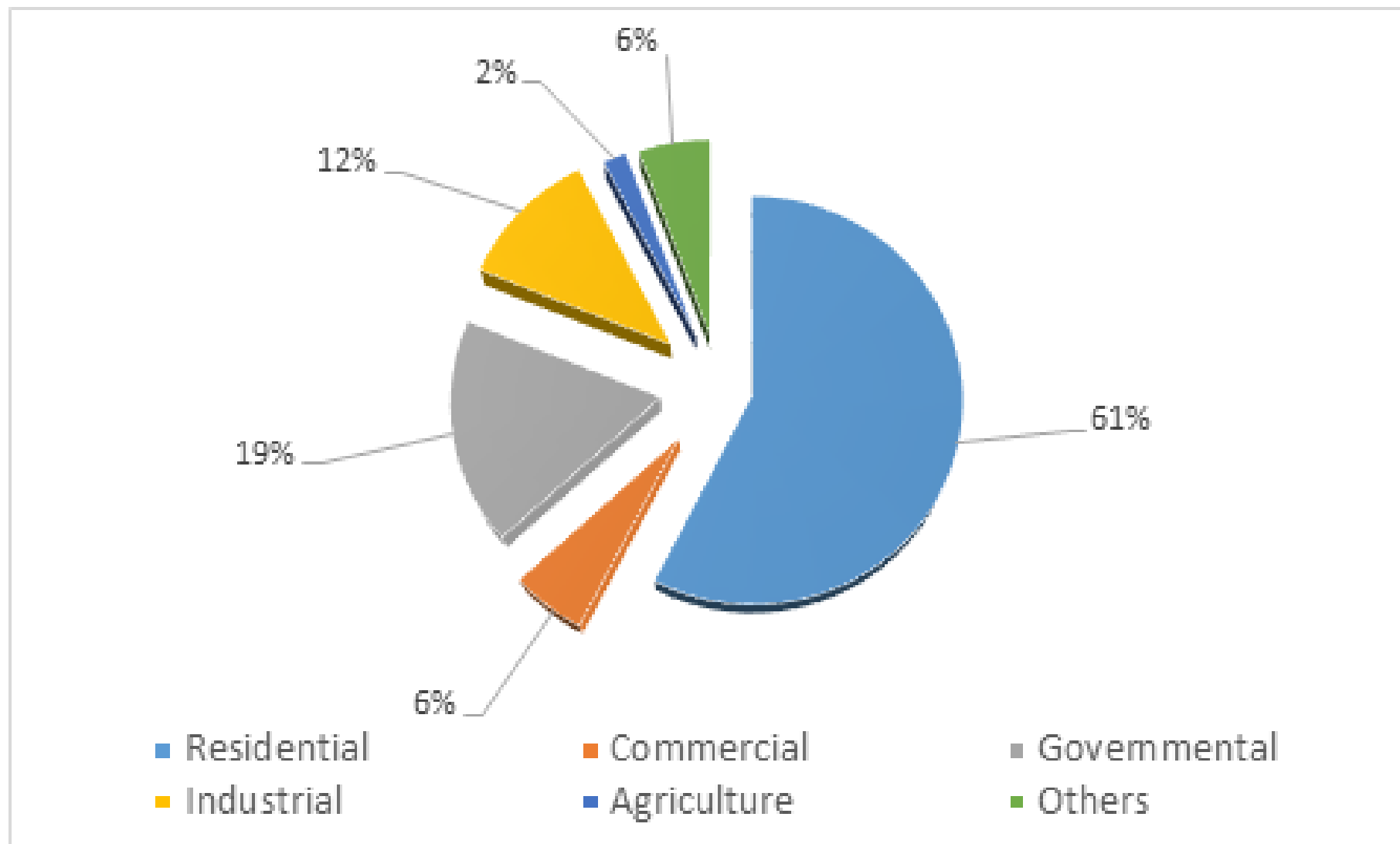
Households, businesses and small industrials have to find alternative solutions for electricity supply to overcome the fact that demand outrun supply, hence the introduction of small-scale oil-based generators that play a fundamental role in substituting grid supply and help to alleviate some of the most acute shortages in the peak summer months.

In 2018, the estimated capacity for small-scale power generation is 5 GW. One third of this capacity is owned by government entities to cover their local demand. The rest of capacity is privately owned and named neighborhood generation. This neighborhood generation cover only half of the deficit between supply and demand. In addition, this option is very costly. The tariff is based on capacity of connection in Ampere. The tariff can reach 20.69 USD/Ampere which puts it among the highest in the world (IEA 2019).



*Difference between supply and demand in Iraqi electricity sector, Energy sector in Iraq, IEA, 2019*

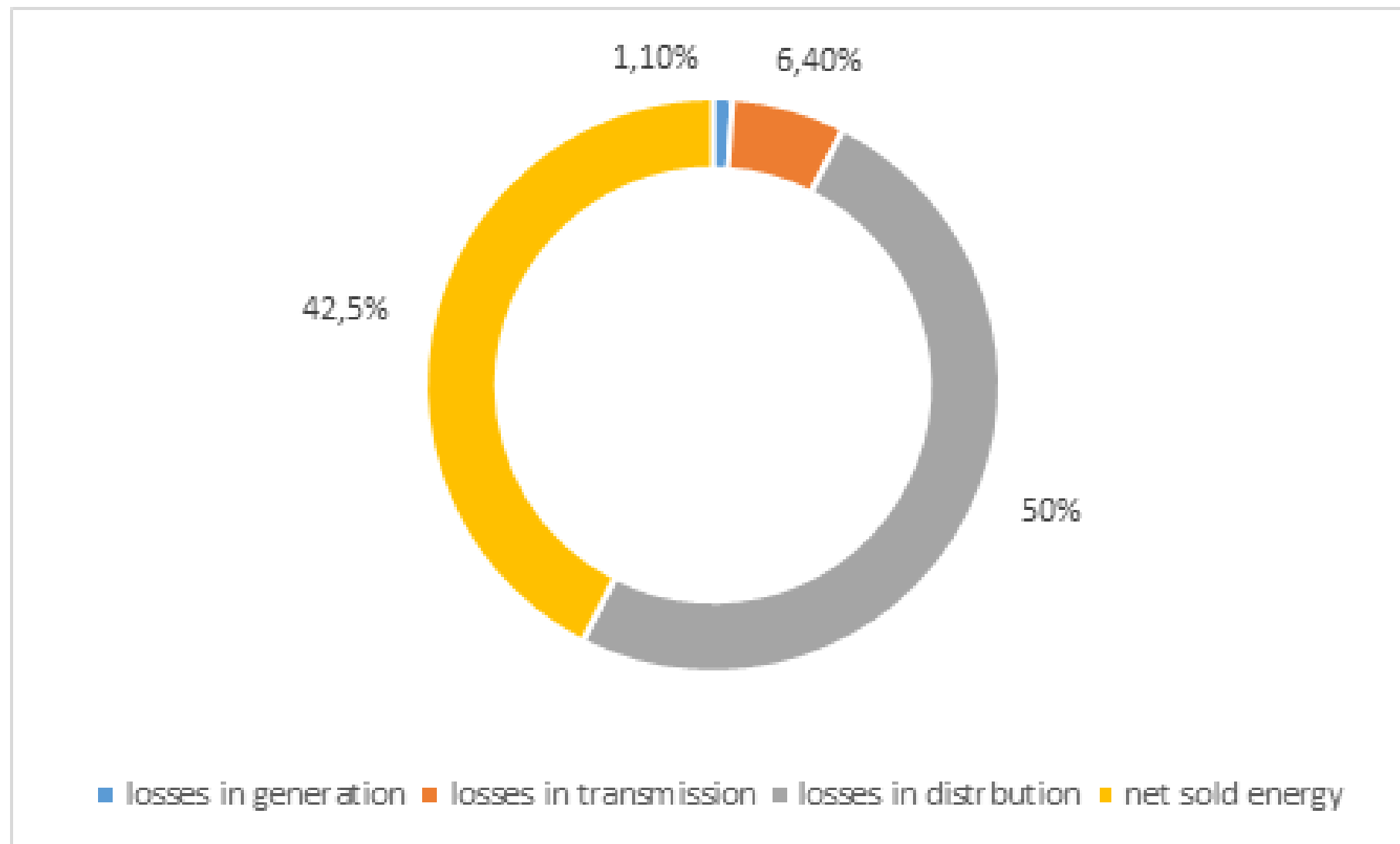
According to the Ministry of Electricity annual report in 2017, residential sector has the lion's share with 61% of the electricity consumption followed by governmental sector. Figure 5 presents electricity consumption distribution by sector. It is important to point that the category others in the graph refer to the consumers who do not pay the tariff and that represent 6%.



*Electricity consumption in Iraq, annual report 2017*

The efficiency of electricity supply chain in Iraq is too low. Starting from generation and according to 2017 annual report, the generation efficiency is 30.7%. The situation is similar in transmission and distribution sides (Figure 6). Electricity grid in Iraq suffer from high losses, for every unit generated, only 0.42 is consumed. High losses in generation and distribution means that a lot of fuel is burned and turned into emissions that harm the environment. Decreasing these losses will consequently decrease the GHGs emissions





*Transmission and distribution losses, annual report 2017*

Alleviating the power shortages and reducing the significant burden of the electricity bill is among the main priorities of the Iraqi government. To overcome these challenges, it is important to encourage energy efficiency actions and programs for both supply and demand sides. For example, supporting high-efficient appliances principally air-conditioning is a priority for the immediate timeframe as well as other strategic actions. However, several barriers are hindering energy efficiency deployment in Iraq as stated in the following table:

Barriers	Barrier Explained	Means of Overcoming Barrier
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Legal, policy, Regulatory Barriers	There is no national law in Iraq that deals specifically with energy efficiency. They are adopting codes that were issued by the Council of Arab Ministers of Housing in their buildings. In addition, there are no minimum energy performance standards (MEPS) for public and residential buildings and there are no minimum energy-efficiency standards for domestic appliances. There is no specific energy efficiency policy focused on energy efficiency and no nationally coordinated policy or strategy or action plan.	<p>The project will help to prepare a new law on energy efficiency to be adopted by Iraqi Government.</p> <p>A program for standards and labeling including minimum energy performance standards related to building and appliances. The law will include both imported and locally manufactured appliances. The project will support the development of a National Energy Efficiency Action Plan (NEEAP). The NEEAP will be for three-time intervals. Short term, Medium-term, and long term. The NEEAP will be consistent and complement the electricity master plan 2030</p>
Institutional Barriers	There is no institution, authority, or unit with specific responsibilities for promoting energy-efficiency. There is no agency responsible for undertaking testing, monitoring, labeling, and certification of appliances imported into Iraq.	<p>New energy efficiency unit will be established. This unit will have a legal mandate after issuing the new law on energy efficiency that will define the institutional responsibilities necessary to promote energy savings and promote nationally coordinated efforts.</p> <p>New labs for testing and certifying the imported and locally manufactured appliances will be established.</p>
Financial Barriers	<p>There are no financial incentives for different sectors to invest in energy efficiency.</p> <p>There is little familiarity from domestic banks in lending for EE buildings.</p> <p>In addition, there is no energy efficiency fund to promote this type of projects</p>	The project will explore financial incentives to encourage different sectors to invest in energy-efficiency. New legislation will define minimum Energy Performance Standards (MEPs) for buildings.
Awareness & Knowledge Barriers	There is a lack of awareness and knowledge about the benefits of energy efficiency.	The project will support the launching of a government awareness campaign.

Knowledge barriers	<p>Ignorance over the benefits of energy-efficiency. There is little incentive to integrate different building functions (planning, engineering, architecture, energy systems, use patterns and so on), even though the greatest efficiency gains require such integration. There are low levels of awareness and technical knowledge as to opportunities for cost-effective improvements.</p>	<p>Government support public awareness campaign to outline the benefits of energy-efficiency. The campaign will stress on the benefits and savings of applying energy efficiency best practices.</p>
Inadequate capacity to perform energy auditing, lack of certified energy managers	<p>There is a lack of trained professionals who can audit buildings and industries to give the proper recommendation for implementing energy efficiency measures.</p> <p>In addition, no certification scheme exists to qualify individuals to be energy managers. Energy managers are responsible for monitoring energy consumption in the facilities and calculate the feasibility of different energy efficiency projects</p>	<p>Training courses on energy auditing for the energy professionals, government officials, and private companies will be offered.</p> <p>Different energy manager certification scheme can be offered. The project will assess different scheme and contract with the best available one.</p>

This proposal is designed to address and overcome the above mentioned challenges in Iraq. The project will boost the promotion of Energy Efficiency programs and actions through the implementation of the adequate policy, regulatory, institutional, technical and capacity framework. EE measures and programs will contribute in the reduction of consumer electricity bill and in the increase of electricity supply stability and independence.

## 2) The baseline scenario and any associated baseline projects

An Energy Efficiency Roadmap and Tariff Scheme Framework for Iraq Electricity Sector was developed in December 2013. Main recommendations were: 1) Installation of an Energy Agency responsible for the Energy Efficiency implementation. As there are different stakeholders, ministries, industries, authorities, etc. involved in the EE topic, a central body should co-ordinate and be responsible for the implementation of the EE national policy; 2) Enhancement of national knowledge and expertise through the organization of training courses and awareness campaign dedicated to energy experts, energy auditors, energy managers and consultants; 3) Electricity sector reform; 4) Introduction on labeling/standards and appliances market control through technical measures and testing in a certified national testing laboratories, 5) Phase out inefficient equipments and lighting and the introduction of high efficient light systems like LED, compact fluorescent lamp (CFL) and other technologies. 6) Grid code development to reduce transmission and distribution losses. Although this Road map was proposed since 2013 however, several recommendations are not implemented yet.

A first proposal of a National Energy Efficiency Action Plan was developed for the period 2013-2016 with the target to save 5% of the national energy consumption. The NEEAP includes the outlines required to reduce energy consumption in potential sectors in Iraq, including building, services, appliances, agriculture, industry and transport. However, the implementation impact and evaluation and the follow up of this action plan was not accomplished and no results are available. An electricity master plan for 2030 is adopted in 2013. EE component in this plan has a target to decrease the losses in distribution network and to reduce supply chain losses and energy consumption.

Iraq submitted an Intended Nationally Determined Contribution (INDC) ahead of the Paris Agreement and signed the agreement in December 2016. In the INDC, Iraq set targets to reduce GHG emissions by 14% below business-as-usual emissions by 2035. Of that reduction, 13% will be conditional and 1% will be achieved through an unconditional target.

In 2014, the Iraqi ministries developed the national energy building code which are voluntary. The code was issued by the Council of Arab Ministers of Housing. Even if the overall context exists still several challenges that face the implementation of EE in building sector including mainly: the existence of dedicated regulatory framework, the development and enforcement of an energy efficiency building code, limited EE financial instruments and incentive measures, lack of certification and quality scheme infrastructure including testing laboratories for characterization of materials, building equipment's and households appliances, lack of national expertise and experience, in fact public and private sector actors (Auditors, Consultants, Entrepreneurs...) are not sufficiently familiar with EE regulations, EE standards and the new EE technologies. EE in building practical experience is also required, public awareness is still beyond expectation. Several national stakeholders including commune authorities are still not aware of the benefits and impact of energy efficiency measures

Currently, the Central Organization for Standards and Quality Control (COSQC) under the umbrella of the Ministry of Planning is heading a national committee for EE labeling including representatives from Ministry of Science and Technology (merged recently with the Ministry of Higher Education & Scientific Research), Ministry of Electricity, Ministry of Housing & Construction, Ministry of Industry & Minerals, Ministry of Health & Environment and the Ministry of Trade. EE labels for Air conditioners, Refrigerators and Washing machines have been issued. The committee is working to cover other instruments including lightening, Air cooler, and TVs.

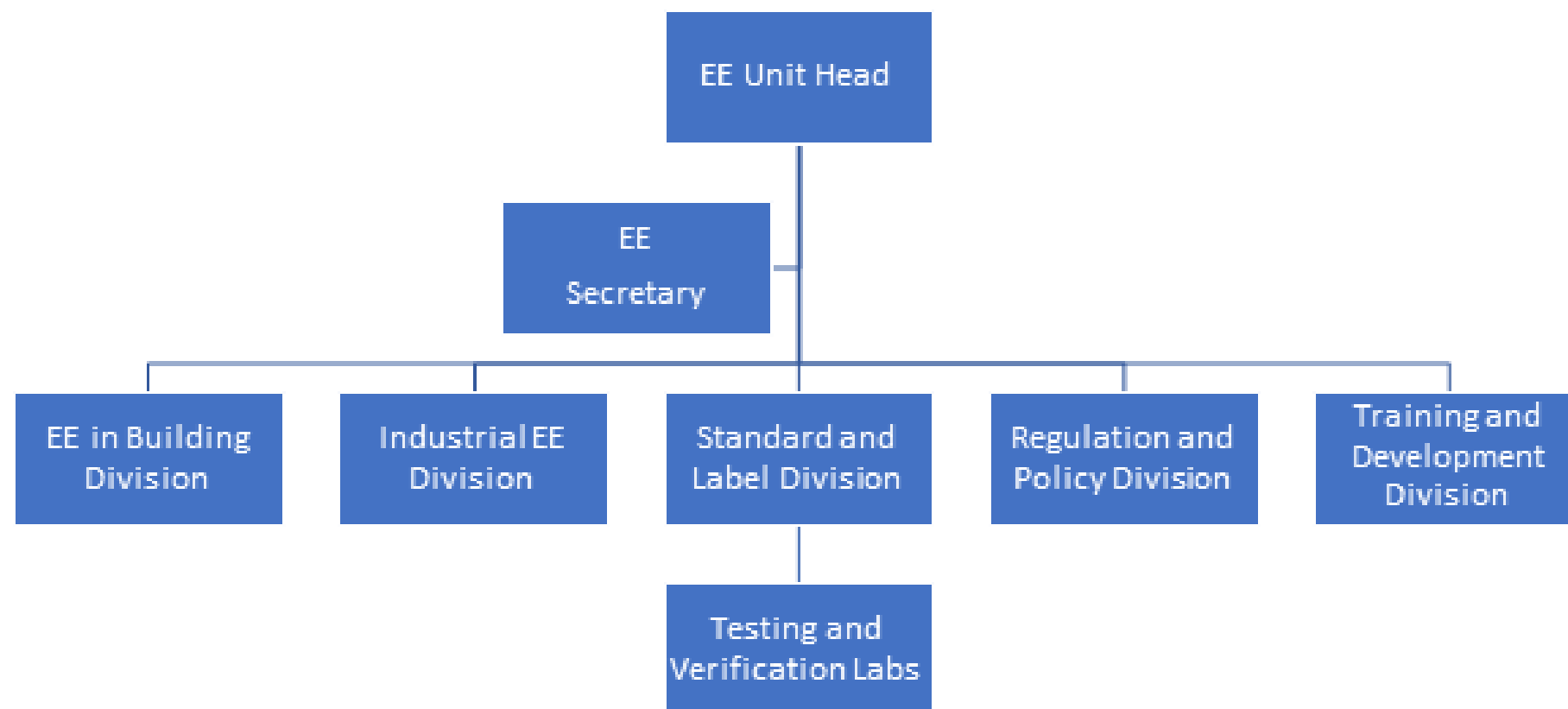
EE can play a crucial role in the life of Iraqi citizen. Developing a National Energy Efficiency Action Plan according to regional and international standards will help to decrease the current and expected deficit gap between supply and demand. The energy saving potential is huge. Nevertheless, Iraq lacks the proper policy, regulation, structure, and capacity to achieve this potential. In addition, there is no dedicated EE unit or authority in Iraq. Unfortunately, there is no clear vision for EE on Iraq.

The World Bank is currently developing a project to enhance and reinforce electricity sector in Iraq, the project includes a component aiming to improve the quality, reliability and efficiency of electricity services through the implementation of EE measures and programs on the supply side. Otherwise there are no projects under development in Iraq that aims to promote energy efficiency for demand side.

The current proposed GEF funded project will build on the achievements on energy efficiency development in Iraq and from regional and international best practices in EE promotion. The proposal includes the collaboration of several national stakeholders involved in EE sector including among others MoCH, MoHEN, Ministry of Planning (MoP), MoHESR, that will join efforts to set up a national energy efficiency program. The present proposal intends to address policy, regulatory, institutional and financing weakness and will reinforce national capacity and expertise in energy efficiency field for both private and public sectors.

**3) The proposed alternative scenario with a brief description of expected outcomes and components of the project:**

The proposed GEF funded project is designed to put in place a robust EE approach in Iraq. The project interventions will provide the enabling environment that facilitates the transfer and diffusion of mitigation technologies that provide market and job opportunities. The core technology to be supported will be the energy efficiency technologies for the building sector including thermal insulation. The project will demonstrate the energy savings and environmental benefits from applying EE technologies on public and residential buildings.



To form EE unit, a committee comprising different stakeholder will be formed. Suggested stakeholders are Prime Minister Advisory Commission (PMAC), Ministry of Health and Environment (as a GEF Focal Point), Ministry of Electricity, Ministry of Construction and Housing, Science and Technology (under the umbrella of the Ministry of Higher Education and Scientific Research, the organization for Standards and Quality Controls (under the umbrella of the Ministry of Planning), and Baghdad Centre for Sustainable Energy (Private Sector). This committee will be responsible for the development and follow up of the EE policy and strategy.

The current component will include the following activities:

- Development of appropriate and enabling policy, regulatory and institutional framework to catalyze EE deployment in Iraq.
- Development of National Energy Efficiency Action Plan in Iraq (NEEAP) to roll-out EE development. This NEEAP will set targets for short-term 2025 and long-term 2030 periods. NEEAP will be consistent and complementary to electricity master plan 2030. EE body will be responsible for reviewing, monitoring, and sustaining NEEAP results.
- Establish and propose financial measures and incentive mechanisms to promote EE technologies adapted to the local context in Iraq. This may include fiscal incentives, energy performance and savings contracts, creation of EE fund. This output will also work in attracting the engagement of the banking sector.
- Set up inventory mechanism & database management system for national energy balance, detailed consumption statistics & related GHG's emissions in the building sectors to follow up and monitor EE programs.

**Component 2: Strengthening individual and institutional national capacity development, expertise, building codes & standards and technical knowledge in the EE buildings sector:**

With the objective to address challenges linked to the limited technical knowledge, capacities and awareness about energy efficiency practices, as well as social and environmental EE impact. It is important to plan capacity development programs and awareness campaign for national experts in both public and private sectors. This component aims to reinforce and qualify national expertise and knowledge through the implementation of certified capacity development activities, consultants, energy managers and auditors, architects, etc. Capacity development programs, that will tackle technical, financial and environmental aspects, will include several courses and topics including the following:

- Training on EE buildings policy, strategy, programs and applications targeting decision makers, technicians and national experts.
- Training on EE in building, targeting students, technicians, building inspectors and relevant civil engineers and architects. This will constitute a training of trainers.
- Development of a sustainable Certified Energy Management Program and Auditing. Energy managers will be responsible for the inspection and optimization of energy consumption and performance of a facility or building.
- Knowledge and best practices exchange missions with relevant regional or international countries with advanced experience in EE deployment. A comprehensive M&E plan according will be developed in the PPG phase.

- Marketing and increasing public awareness and communication campaigns and events for market actors including decision makers, consumers and manufacturers to promote energy efficient applications and programs and increase decision makers' commitment. This will include campaigns to increase consumer awareness of energy efficient equipment and the potential reductions of their electricity bills through the implementation of EE measures in building sector.

- Design of an enforcement policy and strategy to enhance and enforce building energy performance standards and code: The building sector (including administration, residential and services) are the most important consumers of electricity in Iraq (80% of total consumption). As such, and considering the significant burden of the electricity bill, it is recommended to set up immediate and specific EE measures for building sector especially that electricity challenges and pressures are likely to inflate as a consequence of the rapid population growth (estimated at a rate of 1 million per year) and to the economic development.

As mentioned before, the code that was developed by Arab Ministers of Housing in their buildings is adopted in Iraq in a voluntary way. This activity will elaborate and implement appropriate institutional and regulatory frameworks for the implementation of the energy efficiency building code with an enhancement and updates of the present code in order to promote energy efficiency, ensure greater thermal comfort in the building sector and reduce GHGs, starting with new construction. This can be achieved by evaluating lessons learnt from various GEF funded Energy Efficiency projects and other regional and international experiences and best practices, elaborating a framework for Thermal and Energy Efficiency Building codes for new constructions adapted to Iraq's weather and conditions, developing standards for EE building design, materials, equipment and installation.

- Identification and capacity building of related institutions with the mandate of following up the enforcement of the Iraqi building code. Capacity building with also target inspector and analyze the effect of how rules and penalties reflect on the implementation of the Iraqi building code.

- Propose an institutional mechanism to revise building energy performance standards regularly and enforce EE measures in building as building standards and labeling program promise large electricity saving potential that can improve end use efficiency and significantly contribute to sustainable development in Iraq. In addition, this program will help to close the gap between supply and demand and reduce the overall emission produced from power generation plants. The project will strengthen the implementation, regular updating and enforcement of the standards and labels already developed and will take into account the most recent regional and international developments in this field.

Dissemination of EE in building practices, programs, building energy code and energy efficiency labelling through the production of promotional materials disseminated regularly (flyers and posters and publication through available communication channels). Marketing and awareness campaign to phase out the ongoing behaviors and promote the new technologies are fundamental to sustain EE in building programs and highlight the benefits and saving that can be achieved.

### **Component 3: Establishment of an Energy Efficiency Center**

Through this component, the project will set up an EE center and equip existing laboratories with certification schemes and modern technologies for energy efficiency tests on efficient building and renewable energy equipment such as solar panels and create a sustainable capacity development program for building sector. Energy efficiency center and testing laboratories are needed to promote, apply and follow up EE measures and programs as well as to test and experiment performance and measure the generated saving. The results of the test will define the energy consumption patterns for each building. Component four includes the following main activities:

- Set up an energy efficiency center that will be a demonstration project for best practices of energy efficiency in building. This center should be a demonstration project for energy efficiency in buildings. Best practices will be applied in this building especially regarding solar integrated systems to the building.

- Creation of capacity building unit in the energy efficiency center. In fact, the EE center will also provide training for public and private sector. Training must have the proper environment to achieve the required results. The EE center will have lecture rooms equipped with the required facilities (data show, smart boards...) and training equipment (measuring tools, efficient motors...) to measure energy consumption behavior in the building sector. Well-equipped center will help the trainers, instructors, and students to achieve the required results and build the local capacity to transform the market.
- Upgrade, enhance and certify one national testing laboratory and equip the laboratory with testing facilities for solar equipments.
- Renewable energy technology will also be a part of EE center. The center will be a starting point to spread RE technology. Iraqi has limited capacities in testing the efficiency of solar PV panels or solar water heaters, the center newly established facilities will provide capacity building for RE, test SWH or PV panels to ensure the quality of local and imported solar panels in Iraq. In addition, a certification scheme will be proposed through the EE center.

#### **4) Alignment with GEF focal area and/or Impact Program strategies;**

The proposed UNDP-GEF project will be complementary to the baseline initiatives as it addresses barriers that are specifically related to the energy efficiency in the building sector in Iraq. The core technology to be supported will be the energy efficiency technologies for the building sector including thermal insulation. The project will demonstrate the energy savings and environmental benefits from applying EE technologies on public and residential buildings. Thus, this project is consistent with the GEF-7 strategy to address climate change (CCM- Program 1 Promote innovation and technology transfer for sustainable energy breakthroughs), especially the Entry point 3 on accelerating energy efficiency adoption.

#### **5) Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing;**

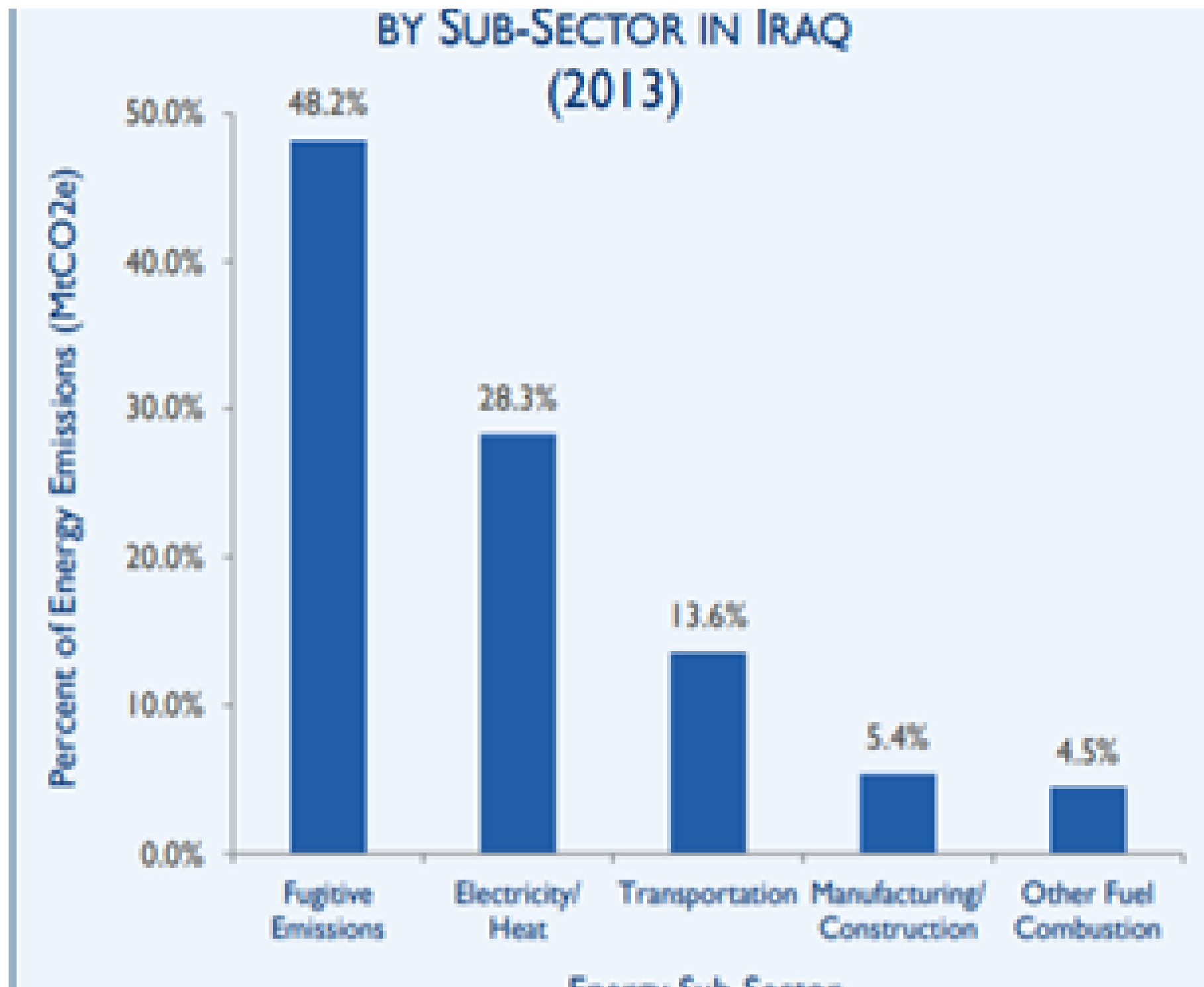


<u>Baseline Scenario</u>	<u>Alternative</u>	<u>Global Environmental benefits</u>
<p>Iraq has a tremendous oil and gas resources potential and ranks the fifth largest proven crude oil reserve in the world with 141.4 billion barrels. With all these energy reserves, coupled with severe instability and wars in the past, little attention was paid to energy efficiency. This scenario will likely continue in the future if actions in promoting energy efficiency are not taken.</p> <p>Government of Iraq will continue to face several challenges including: (1) Lack of Policy, Legal and Regulatory Framework that are supportive of energy efficiency initiatives, (2) Limited institutional capability to facilitate energy efficiency programs implementation and follow up, (3) Limited implemented EE projects and programs and absence of evaluation of EE measures impact, (4) Low Public and Professionals Awareness on EE initiatives applications and programs; and, (5) Lack of Capability from national public and private sector to implement EE projects, and/or provide EE services.</p>	<p>A good enabling environment is in place. Key stakeholders from Government, private sector, NGOs and beneficiaries are capable in understanding, managing and implementing sustainable EE measures. The enabling environment triggers the development and diffusion of mitigation technologies that provide market and job opportunities.</p> <p>Individual and institutional national capacity are developed and strengthened. Top notch expertise and technical knowledge in the EE sector are available.</p> <p>A range of EE programs and applications across and within sectors are promoted, implemented, scaling up and replicated, leading to significantly reduce the GHG emissions in the energy sector.</p> <p>Knowledge management, capacity development and awareness raising are conducted to promote a better environment.</p> <p>An energy efficient center is established and fully functional. Energy Performance Standards are known for buildings and equipments.</p>	<p><b>CCM benefits</b></p> <p>78,300 tCO<sub>2</sub> Direct project emission reductions and 156,600 tCO<sub>2</sub> Consequential emission reductions.</p>

#### 6) Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF);

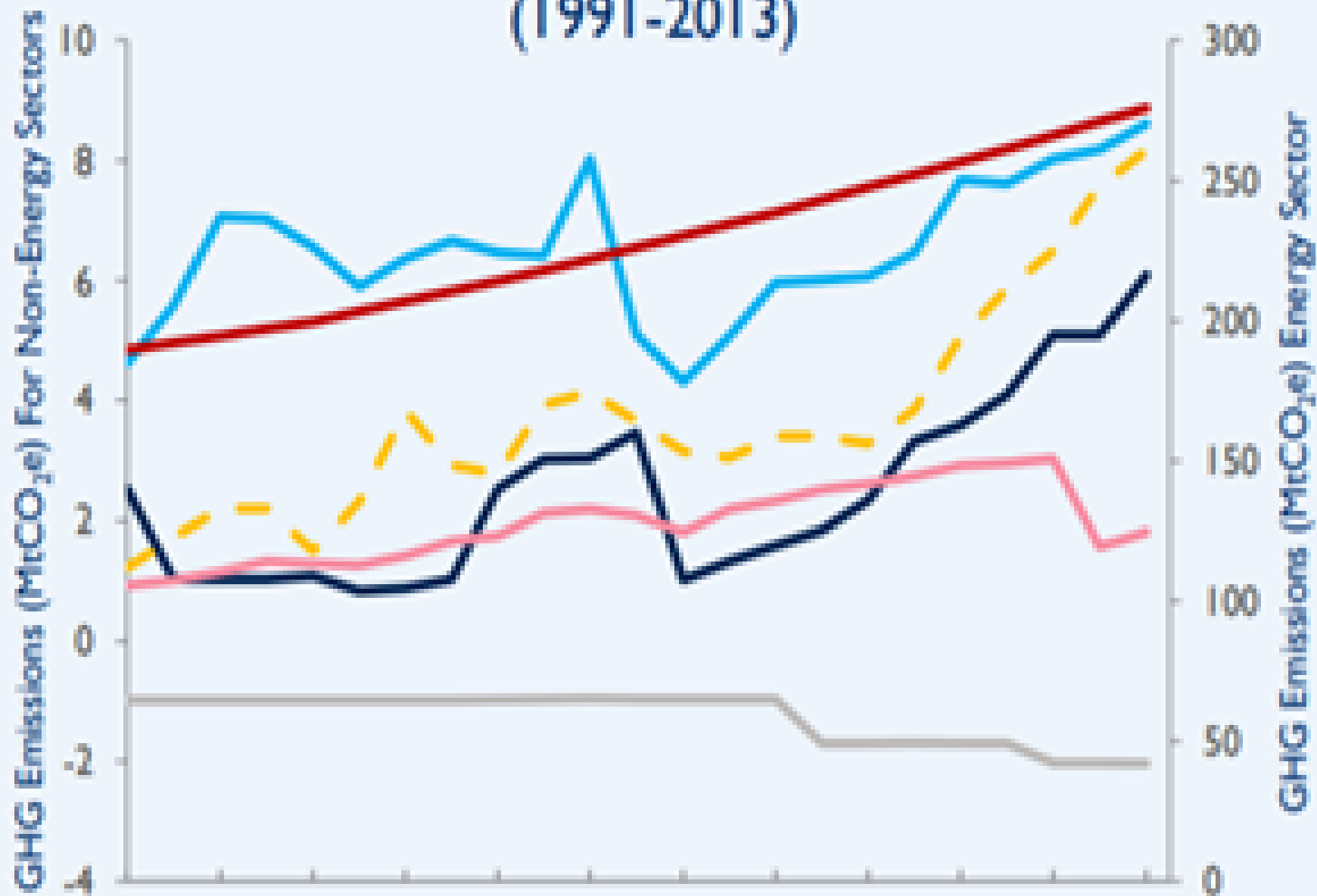
Iraq has been in crisis in the past years, and it is difficult to find on the ground data. The main technique used is extrapolations. According to the USAID analysis, the energy sector is the main source of GHG emissions contributing at 261 MtCO<sub>2</sub>e to Iraq's emissions in 2013. The energy sub-sectors, shown in the figures below, of fugitive emissions, electricity/heat, and transportation constitute the majority of energy emissions. The energy sector had also the largest total increase in emissions during this period, from 112 MtCO<sub>2</sub>e in 1991 to 261 MtCO<sub>2</sub>e in 2013 (133%) as highlighted below and this trend is expected to continue over the upcoming years.

## PERCENT OF TOTAL ENERGY SECTOR EMISSIONS



Energy sub-sector

## GHG EMISSIONS BY SECTOR IN IRAQ (1991-2013)





Energy Sector Emissions

GHG emission in Iraq

The preliminary estimation of the direct global benefits of the project resulting from the implementation of the new foreseen EE regulations and planned investment and financial support schemes planned within the framework of the present proposal has been assessed at a minimum of 4 million tons of CO<sub>2</sub> compared to 2013. However, to be very conservative, it is assumed that the project will lead to at least 1% reduction in the Energy sector (261 MtCO<sub>2</sub>e). That leads to:

$$261,000 * 0.01 = 2,610 \text{ tCO}_2/\text{year}.$$

Assuming that the buildings will last up to 30 years, the total direct emission would be  $2,610 * 30 = 78,300 \text{ tCO}_2$ .

Assuming a replication factor of 2, the consequential bottom-up approach results to  $78,300 * 2 = 156,600 \text{ tCO}_2$ .

A more detailed calculation based on the methodology adopted by the GEF will be conducted during PPG.

## 7) Innovation, sustainability and potential for scaling up.

### Innovativeness:

The residential sector consumes almost 61% of the energy in Iraq. Through a variety of innovative energy efficiency improvements and confirmed and effective enabling policies and regulations (information availability and transparency, legal and institutional framework, implementing code, switching to renewable resources, access to incentives and innovative financing schemes, existence of national expertise), building sector will be more energy efficient.

Hence **Promoting Carbon Reduction Through Energy Efficiency Techniques in Baghdad City** is an innovative project as it will provide new practices and propose innovative solutions and technologies that will lead to overcome energy challenges in Iraq through the reduction of consumer electricity bill and the increase of electricity supply stability and independence. The project will contribute in solving citizen energy problems and propose innovative financial schemes and capacity development activities to promote the EE sector.

Furthermore, the project will set up a dedicated energy and environmental database that integrate climate change information and objectives.

#### **Sustainability:**

The project will be endorsed by the Ministry of Electricity in Iraq that will guarantee the implementation and follow up of the National Energy Action Plan scheduled within component 1, the Iraqi NEEAP will propose short- and medium-term strategies and programs to be implemented.

Enabling regulatory and institutional framework, building codes, EE center, sustainable capacity development activities, etc. will be developed to develop and sustain the EE sector.

The implementation of energy efficiency measures planned within the framework of the current project will systematically secure the energy system and impact both environmental and economic sustainability. In fact, a global effort and commitment to deploy the appropriate energy efficiency policies could considerably drop greenhouse gas emissions peak according to the IEA's latest analysis on energy efficiency.

Sustainability will also be ensured financially, through output 1.3 on Financial measures and incentive mechanisms. This will constitute a cornerstone of sustainability, especially for the EE center to be built under Component 3. The Center will be established in close partnership with Government (namely Ministry of Higher Education and Scientific Research) and the Private sector (construction companies, energy companies). Financial measures and incentive mechanisms will design cost effective recovery systems for the center, in term of payment services, certifications, labelling, operation and maintenance. This will allow its financial sustainability beyond project closure. So specifically on the EE center, it will be managed by the Government with close partnership with private sector, to ensure sustainability after project closure. The center will work on a fee-based model for certain of its clients, e.g. offering audit, certification and labelling services.

#### **Potential for scaling up:**

Strong potential exists for **Promoting Carbon Reduction Through Energy Efficiency Techniques in Baghdad City project** to be duplicated in all Iraq cities and address the problem of power shortages in Iraq and bridge the gap between the peak season demand and available supply. Iraqi best practices can also be adopted by neighboring and Arab countries.

The project outputs will contribute in changing government and people's decision-making and behavior and will impact social development and job creation in Iraq through reducing energy bill, increasing residential sector comfort, and creating new job opportunities. This will have also a catalytic effect on local markets, attracting new service providers and equipment suppliers, increasing competition and driving down prices for building equipments.

The core of national EE experts that will be created could also support in promoting EE programs and policies at national and regional level.

**1b. Project Map and Coordinates**

**Please provide geo-referenced information and map where the project interventions will take place.**

Interventions will be in Baghdad as a first phase. That is mainly because Baghdad has the largest population in Iraq and the highest electricity consumption, acc. 2017 report. Thus the highest electricity consumption which will lead to highest impact and energy saving through the implementation of a sustainable Energy Efficiency actions and programs. (please see map in Annex A).

## 2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Indigenous Peoples and Local Communities

Civil Society Organizations Yes

Private Sector Entities Yes

If none of the above, please explain why:

**In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement.**

The project identification was based on the assessment of the national energy context and the analysis of challenges and needs in Iraq in consultation with Government authorities and private sector.

EE strategy acceptance by all actors in Iraq will lead to successful project implementation. Hence the project will work closely with all national stakeholders including private developers, architects, experts, as well as civil society as they can provide crucial support in raising national awareness, changing the common behavior and in the endorsement of the proposed policies.

Experiences show that civil society play a vital role in addressing sustainable energy development and environment challenges. Iraqi Government has the principal responsibility for meeting national commitments to the Convention on Climate Change and other global and regional environmental agreements, however, civil society will support in translating these commitments into effective action and programs on the ground and will help in ensuring the public endorsement of EE action plan as they can act as a trusted intermediary entity between communities, government ministries, and the private sector.

They could also coordinate with donor-funded climate and energy activities principally in countries with crisis and fragile contexts. Close co-operation is also foreseen with all involved national stakeholders and regional and international organization.

Stakeholder	Expected Role
Ministry of Construction, Housing, Municipalities and Public work (MoCH)	<p>MoCH is the authorized ministry related to construction, housing and municipalities, within this project close cooperation with MoCH and its competent departments will be coordinated to manage EE related project design elements.</p> <p>Legal frameworks, policies and regulations will be transferred from national ministry level to regional municipality levels and in city/town level.</p> <p>During project implementation MoCH will oversee EE activities.</p>
Ministry of Health and Environment (MoHEN)	MoHEN is the focal point for GEF and environmental related issues such as GHG emissions, nationally and internationally agreements i.e. NDA will be.
Regional Center Renewable Energy and Energy Efficiency	RCREEE is a center of excellence in the region and is expected to be a partner to support leveraging regional best practices in achieving the policy outcomes for Iraq.
Private sector companies (Example: BRESC)	BRESC private company specializes in renewable energy and sustainability development; they have initiated a number of initiatives to raise awareness on the SDGs in addition to the technical and financial feasibility of solar PV. BRESC is also member in RCREEE representing the private sector.
Civil Society and Community-Based Organizations, Non-Governmental Organisations and Women's Organisations	NGOs active with EE or climate change initiatives in Baghdad and/or Women-based NGO or SMEs will be supported to raise awareness and knowledge on EE
UNDP	GEF Agency for this project. Will coordinate the PPG in close collaboration with various stakeholders.



### 3. Gender Equality and Women's Empowerment

**Briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis).**

The project will create a number of green jobs, for which roles specific to women will be created. These can be distributed across all levels of EE. It is expected that a number of micro and small enterprises will also stem from the enabling environment created by this project, specifically in the building sector. The project will seek the participation of youth and women as the main cohort of the local population to drive the growth of these enterprises. Women for Safe and Green Iraq (WfSGI) platform was established in Iraq to support women in various sectors, WfSGI has gathered together women from all ministries, NGO's, academic institutes, private sector and others to identify the challenges that women face in Iraq. WfSGI will support women in gaining equal rights in jobs, decision taking, land ownership, entrepreneurship, start-up companies and other ways to phase out the disproportional share for women in the community. The project will also focus on letting women have an equal chance to be a part of the project and will encourage project partners to choose women as their representatives in the project. Challenges that might face women in EE will be addressed in the project and awareness events will focus on gender equality. The project will address women empowerment in energy sector, 20% of the EE trainee will be dedicated to women, 20% of the management positions will be occupied by women.

**Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment? Yes**

closing gender gaps in access to and control over natural resources;

improving women's participation and decision-making; and/or Yes

generating socio-economic benefits or services for women. Yes

**Will the project's results framework or logical framework include gender-sensitive indicators?**

TBD

#### 4. Private sector engagement

Will there be private sector engagement in the project?

Yes

**Please briefly explain the rationale behind your answer.**

Private sector is a crucial actor in the deployment EE sector in Iraq as it plays important roles as consultancy firms, auditors, architects, appliances providers, etc. Raising awareness for efficient appliances will require also the contribution and support from private sector. In addition, private sector should be encouraged to offer energy efficient appliances and stop offering high-energy consumption equipment.

The project will be fully partnering with private sector, especially SMEs working on EE, for example BRESC. This company has been working with RE and EE and are aiming towards investing in EE materials which has a market value inside and outside Iraq. BRESC is also leading a number of initiatives including training of engineers on EE labelling, awareness events on RE and sustainability for primary school and up.

The project will work closely with domestic banks in a consultative approach in order to develop financial measures and incentive mechanisms attractive for domestic banks.

## 5. Risks

Indicate risks, including climate change, potential social and environmental risks that might prevent the Project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the Project design (table format acceptable)

Risk	Rating	Mitigation
Political will to introduce a new law on energy efficiency which includes new building codes	High	<p>Iraqi government has the interest to implement this project. This project will play a crucial role to close the gap between electricity supply and demand.</p> <p>Existing strategies at the national and local levels as well as legal frameworks will provide a conducive environment to execute EE development. Project implementation will also ensure an inclusive, participatory approach at the local level, involving all key stakeholders. A clear institutional arrangement will be established that facilitate coordination between the national, regional and local levels of government. Iraqi government has the interest to implement this project. This project will play a crucial role to close the gap between electricity supply and demand.</p>
Security - The security situation in Iraq is unstable. Without general security, the ability of crews to travel, transport goods and work will be restricted. Equipment, where the entire capital is procured and installed upfront, theft or damage can mean a complete loss of invested capital.	High	The UNDP Country Office is communicating with the Government of Iraq and most of its ministries on a daily basis and an UNDP will follow the security arrangement of the UN mission in Iraq
Energy pricing strategy	Moderate	<p>Promoting national energy debate and policy dialogue at high level.</p> <p>Propose specific financing instruments/fund and government support schemes for the transition period to promote EE programs and overcome electricity tariffs subsidies.</p>
Lack of ability to establish a national testing mechanism for new appliances and a framework for labeling and certification of appliances	Moderate	In order to mitigate this risk, a comprehensive program of activities defined by this project will help define and reduce the risks in order that a national testing mechanism is put in place. In addition, government commitment will help to overcome this risk by facilitating connection with different stakeholders.

The government will not adopt new energy performance standards for buildings	High	This risk will be mitigated by demonstrating the national economic benefits of the proposed changes. This requires early involvement of related ministries. Actual case studies that show costs and the associated savings by implementation of the program will be demonstrated in addition to the experience exchange with other countries to show the MEPs add-value.
Government and/or other donors will not provide support and funds for new financing instruments	Moderate	<p>Comprehensive economic analysis that shows the benefits of energy efficiency program implementation will be done. In addition, involvement of the Ministry of Finance from the very beginning is essential.</p> <p>For other donors, representing the commitment of the Iraqi government to establish and co-finance proposed funding mechanism will encourage them.</p> <p>Cooperate with other donors in the design so as to assure a smooth development of international co-financing.</p>
Standards and labeling may not be enforced effectively despite the support provided by the project	Moderate	The project will test enforcement models that are consistent with the respective resources and capacities, and explore applicable incentives to promote effective enforcement of the standards and labels adopted.
Lack of coordination amongst various stakeholders and partners involved in EE deployment in Iraq	Moderate	The project through UNDP Iraq will ensure the coordination and integration to support catalyzing EE deployment in Iraq and reach the project objectives, in line with Iraq's Electricity Master Plan 2030 and national strategy. The project management will include a steering committee comprising ministries and public entities involved in EE sector in addition to representatives from the private sector.
Lack of co-operation by the private sector	Moderate	Continued dialogue and engagement of the private sector by recognizing the internationally changing market environment and identifying and pursuing the idea of new market opportunities and common benefits.
Climate change risk	Moderate	The ambient temperature in Iraq is expected to increase in the future due to climate change. Prolonged heat waves, erratic precipitation, higher than average temperatures and increased disaster intensity are

		possible climate change effects in the country. In addition to increase in temperature, other climate effects such as intense droughts, declining precipitation, desertification, salinization, and the increasing prevalence of dust storms may also be observed. As a mitigation strategy, the EE building codes will be an effective form of adaptation to this climate impact. Adaptation measures which will be incorporated into this project include; 1) introduction of climate-responsive building techniques and elements to reduce the effect of heat and reduce demand on energy for cooling; 2) Promotion of the use of energy-saving devices, and raising awareness on the long-term benefits of energy efficient devices; 3) amendments to sector policies and regulations, such as building codes, to reflect climate change risks and to direct people towards insulating buildings to reduce energy demand; and 4) zoning and development changes to reflect increased vulnerability of specific locations in the country.
Overall	High	Given the high-risk rating of the project, an "Environment and Social Management Framework" will be prepared during PPG phase.

## 6. Coordination

**Outline the institutional structure of the project including monitoring and evaluation coordination at the project level. Describe possible coordination with other relevant GEF-financed projects and other initiatives.**

All the project components will involve concerned national and local stakeholders including the above-mentioned ministries involved in the building sector and energy efficiency activities to support the development of a Law on Energy Efficiency in building and an Energy Efficiency Programme for Iraq.

Regular consultation and meetings will be conducted to present the project outputs and results and collect feedback and approval of national entities in order to well align the project deliverables with the Iraqi actual needs and requirement. Lessons learned from the project will be shared with all key government and private stakeholders and finally approved and endorsed at national level.

The project will also work closely with private developers, architects, experts, etc. It will also coordinate with donor-funded climate and energy activities. Close co-operation is also foreseen with involved national stakeholders and regional and international organizations. Further possibilities for co-operation with other related initiatives will be explored during the final project document preparation.

Other stakeholders will include researchers in the buildings and climate sectors, engineers and architects, relevant educational institutions such as the Iraqi universities, and any relevant associations, NGOs, etc.

The outputs, conclusions, recommendations and lessons learnt from the previous energy efficiency projects, in particular GEF Funded/UNIDO/UNDP/WB projects will be considered in the detailed project documents. The applicable parts of the information collected, and the work and contacts initiated during the previous project will be fully utilized to avoid any duplicating of the work already done.

On institutional arrangements, this project, as almost all projects in Iraq, will be directly implemented by UNDP using the DIM modality (Direct Implementation). Iraq is a post-war conflict country, where institutions are still weak. In that regard, the UNDP Country Office (UNDP Iraq) is responsible for the project implementation and achievement of the project outcomes and outputs, transparent practices and appropriate conduct and professional auditing in compliance with UNDP rules and regulations as per DIM. UNDP will provide Direct Project Services (DPS), according to UNDP policies on GEF funded projects. DPS costs are those incurred by UNDP for the provision of services that are execution driven and can be traced in full to the delivery of project inputs. Direct Project Services are over and above the project cycle management services. They relate to operational and administrative support activities carried out by UNDP. DPS include the provision of the following estimated services: i) Payments, disbursements and other financial transactions; ii) Recruitment of staff, project personnel, and consultants; iii) Procurement of services and equipment, including disposal; iv) Organization of training activities, conferences, and workshops, including fellowships; v) Travel authorization, visa requests, ticketing, and travel arrangements; vi) Shipment, custom clearance, vehicle registration, and accreditation. Further analysis will be conducted at PPG phase.

## 7. Consistency with National Priorities

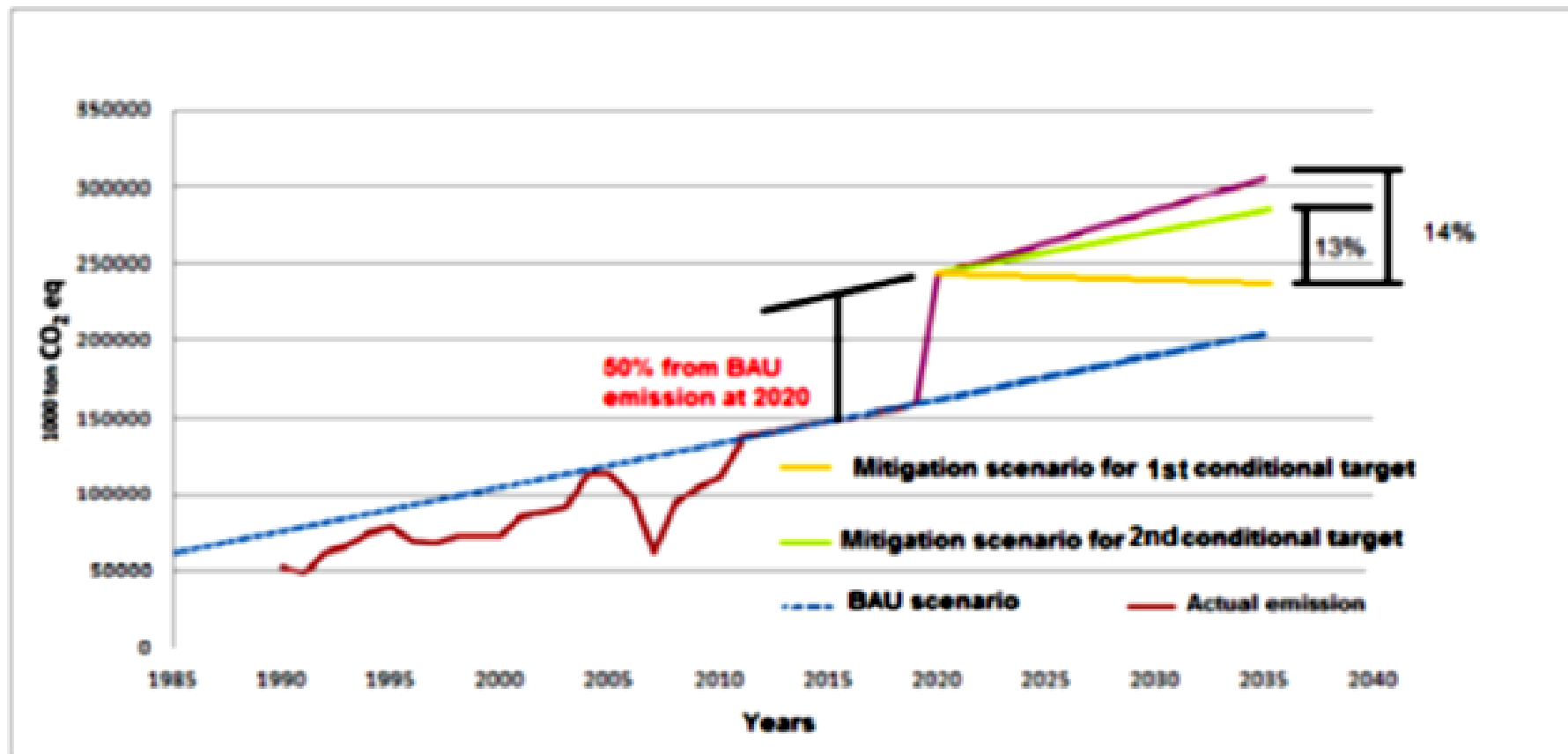
**Is the Project consistent with the National Strategies and plans or reports and assessments under relevant conventions**

Yes

**If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc**

- - Unfccc National Communications (Nc)
- - Unfccc Biennial Update Report (Bur)
- - Unfccc National Determined Contribution
- - Unfccc Technology Needs Assessment
- - Others

In 2015, Iraq submitted its NDCs. It targets to save 14% from business as usual (BAU) scenario. The next figure depicts the BAU and target scenario until year 2035



The base line in the graph will increase in year 2020. That is mainly because the Ministry of Electricity in Iraq plans that by year 2020, grid access will be available to the majority of Iraqi citizens and electricity cuts will be eliminated. Iraq targets several sectors to reach this target.

Emission reduction in the electricity sector will be achieved by targeting four areas; production plants will use combined cycle and more efficient technologies, catalyzing the use renewable energy, development of hydropower, and implementing energy efficiency technologies and programs. The latter aligns well with our proposed project. Implementing energy efficiency technology will have the highest impact in the energy sector emission reduction.

The project contributes to Iraqi electricity master plan 2030 initiative and response to national needs and requirement towards sustainable energy path. In addition, the project will help the Iraqi governments to reduce the electricity deficit. SDG7 stresses on ensuring the access to affordable, reliable, sustainable and modern energy for all. Following EE best practices will help to reduce electricity outage, reduce the GHGs emissions related to power generation, and increase the electricity access, security and stability in Iraq.

First National Communication to the UNFCCC - Energy efficiency is highlighted under the Energy chapter "Improvement of energy efficiency and consumption rationalization are good ways to achieve sustainable development".



## 8. Knowledge Management

**Outline the Knowledge management approach for the Project, including, if any, plans for the Project to learn from other relevant Projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.**

The knowledge management approach of the current project will be based mainly on: **(1) Creation of a national data base system** through the development of an inventory mechanism and database management system for national energy balance, detailed consumption statistics and related GHG's emissions in the building sector to follow up and monitor EE programs planned within the framework of component 1; **(2) knowledge creation** through the establishment of national expertise pool by conducting several capacity development activities planned in component 2; **(3) knowledge transfer** activities by ensuring the expertise and best practices exchange missions with relevant regional or international countries with advanced experience in EE deployment and the organization of training of trainers courses so that the experts can transfer their knowledge to the local engineers and specialists in addition to the development of marketing and awareness campaigns and events to promote energy efficient applications and programs and increase decision makers' commitment. And **(4) Sustain knowledge** with the framework of component 2 and 3 by creating capacity building unit inside energy efficiency center and the implementation of regular and sustainable capacity development activities. In addition, a comprehensive effort to track results will be made.

Globally, the knowledge management methodology will be based on five pillars and steps:

- Ensuring availability and sustainability of data.
- KM planning with the aim to assess and identify knowledge needs and gaps and plan trainings to overcome knowledge and Iraqi expertise challenges.
- The implementation of a capacity development program to raise awareness and enhance knowledge among government institutions and other public and private stakeholders on energy efficiency in building in Iraq including national planners and decision makers.
- Set up a communications strategy to disseminate capacity development programs and raise national awareness towards EE deployment.

Assessment and evaluation of the knowledge program and propose quantifiable indicators to measure capacity development impact and the project add-value on enhancing Iraqi expertise in EE field

**Part III: Approval/Endorsement By GEF Operational Focal Point(S) And Gef Agency(ies)**

**A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter with this template).**

<b>Name</b>	<b>Position</b>	<b>Ministry</b>	<b>Date</b>
Dr. Jasim Abdulazeez Humadi	Technical Deputy Minister GEF OFP	Ministry of Health and Environment	9/24/2019

# **ANNEX A: Project Map and Geographic Coordinates**

Please provide geo-referenced information and map where the project intervention takes place



Baghdad 33.316474, 44.363882 Map data ©2019 2 km

