



Lighting up Lives through Cooking Gas and transforming society

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W. P. No. 2018-12-05

December 2018

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Lighting up Lives through Cooking Gas and transforming society

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Abstract

The study, reported in the form of a case, narrates the story of a major attempt at social transformation through a simple mechanism of providing cooking gas (LPG) to the marginalized in society. Targeting about 100 million households in India who still use dung-cakes, firewood, and coal as the primary fuel for cooking, the *Pradhan Mantri Ujjwala Yojana* (PMUY) was conceived with the objective of replacing these traditional fuels with LPG which is a clean fuel. The initial target of providing 50 million *Below Poverty Line* (BPL) families with LPG at the time of the launch of the scheme on May 1, 2016 was increased to 80 million by 2019-20, and as of January, 2018 over 30 million families had already been covered by the scheme.

The key findings are as follows. The scale and speed of implementation were achieved through excellent coordination between the government system, the government-owned Oil Marketing Companies (OMCs) and the banking system. The government system represented by officials from the central government, the state governments, and the village heads (*Sarpanchs*) helped in identifying BPL beneficiaries and in mobilizing people to canvass the idea of switching over to LPG from traditional fuels for cooking. The OMCs (the three companies involved in the implementation were IOCL, BPCL and HPCL) designed and created the robust logistics system needed for bottling and distribution of cooking gas. They also designed and created the IT platform required for easy transaction and record keeping for the entire logistics system. The banks provided the infrastructure needed for flow of funds, including flow and accounting of subsidies from the government.

PMUY is clearly one of the largest social intervention schemes executed anywhere in the world in challenging environment. Its successful implementation provides insights into management of such interventions. The lessons that can be drawn from the implementation would be of use for similar large-scale social interventions.

¹ The case is authored by Samir Kumar Barua, former Director and Faculty member, IIMA and Sobhesh Kumar Agarwalla, Faculty member, IIMA. The case or excerpts from the case may not be reproduced/distributed in any form without permission of the authors.

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The authors gratefully acknowledge the support received from Shri Dharmendra Pradhan, Minister of Petroleum and Natural Gas, Government of India and IOC in writing the case. Specifically, we acknowledge the support from Ashutosh Jindal, Joint Secretary, Marketing, MoP&NG and the following IOC executives: Mr. Subodh Dakwale (the inspiration for the case), Mr. Sanjeev K. Jain, Mr. Manish Grover, Ms. Sadhana Khara Mittal, Mr. Vinay K. Verma, Mr. Krishnendu Mukherji, Mr. Rajesh K. Meena, Mr. Ashutosh Gupta, Mr. Jayantanuj Santra and Mr. Bhim Singh Yadav. We would also like to thank the homemakers of beneficiary families who freely expressed their views and allowed us inside their kitchens and homes during our field visit and two LPG Distributors of IOC for organizing the meetings.

1. Introduction

April 20, 2018 was celebrated as the *Ujjwala Diwas*², where on a single day 15,909 LPG (Liquefied Petroleum Gas) *Panchayats*³ were organized pan India with an estimated attendance of over 5 million beneficiaries. On this single day around 1.1 million new beneficiaries were enrolled and provided with LPG connection under *Pradhan Mantri Ujjwala Yojana*⁴ (PMUY). Senior officials from all Oil Marketing Companies (OMCs) participated in the LPG Panchayats, encouraging both the sustained and safe usage of LPG. The day marked affirmation of the commitment to provide clean fuel to practically every family in India.

It is estimated that about 100 million households in India still use dung-cakes, firewood, and coal as the primary fuel for cookingⁱ. The PMUY was conceived with the objective of replacing these traditional fuels with LPG which is a clean fuel. Launching the scheme on May 1, 2016 in Ballia, a city with a population of just over 100,000 in Uttar Pradesh, Mr. Narendra Modi, Prime Minister of India said, “This scheme launched today will benefit poor families and particularly poor women.”ⁱⁱ In a wide-ranging interview reported on May 22, 2016 edition of Business Today,ⁱⁱⁱ Pradhan said, “*In the next three years, five crores⁵ BPL families will get access to cleaner fuel.*” By the beginning of 2018, the target had been raised to 80 million BPL families. Economics and convenience aside, substituting traditional fuel with LPG for cooking would be of significant health benefits, particularly for women and children in the families.

The government allocated a sum of INR 80 billion to the project to support the subsidy of INR 1,600 per connection for providing 50 million LPG connections to BPL (Below the Poverty Line) families over a period of three years, from 2016-2019.^{iv} The target for beneficiaries was subsequently increased to 80 million BPL families by the year 2019-20. The task of providing the connections was entrusted to three government-owned Oil Marketing Companies (OMCs), Indian Oil Corporation Ltd. (IOCL), Bharat Petroleum Company Ltd. (BPCL) and Hindustan Petroleum Company Ltd. (HPCL). As of December 10, 2017 the number of districts covered by the project had exceeded 700 and the number of gas connections installed was about 31.80 million.^v The vast scale and scope of the project required meticulous planning and execution.

2. The Build-up to PMUY

Like most developing countries, in India too government provides subsidies on a variety of items. One method of subsidizing is through pricing products and services below market prices. The shortcoming of this method is that while subsidies are typically meant for the weaker sections of society, even those who can afford to pay end up benefiting from such price subsidy. In fact, they may benefit more as their per capita consumption of the subsidized item may be higher than that for the less privileged. The energy subsidy in India through sub-market pricing of Kerosene and LPG is an example of a subsidy that

² ‘*Ujjwala Diwas*’: *Ujjwala* is the name of the scheme and *Diwas* means Day

³ *Panchayat* means Community Gathering

⁴ ‘*Pradhan Mantri Ujjwala Yojana*’ means ‘Prime Minister *Ujjwala* Scheme’

⁵ One crore equals ten million

significantly benefits the affluent. As India imports about 70% of its requirement of petroleum products, the amount of subsidy is determined by the price of crude and the price of petroleum products. There has been a significant decline in the energy subsidy over the last three years due to decline in the price of crude.

2.1 DBT and PAHAL

After considerable debate on the manner in which such state subsidies should be provided so that they reach the target segments, the Indian government decided to roll out the Direct Benefit Transfer (DBT) Scheme from January 2013, whereby benefits under 26 selected subsidy schemes would be credited directly to the bank account of the beneficiaries. Launched at Gollaprolu in East Godavari District of Andhra Pradesh on 6 January 2013, the first Phase of the DBT Scheme covered 43 districts belonging to 16 states, selected on the basis of the coverage of bank accounts and Aadhaar^{6,vi}. The usage of DBT has since expanded rapidly over the last four years. By March 2017, the number of subsidy schemes under DBT had increased to 140 with INR 1826.71 billion having been disbursed to 357 million beneficiaries.^{vii}

The Direct Benefit Transfer for LPG (DBTL) was launched on June 1, 2013 initially in 20 high Aadhaar coverage districts and was rolled out in six phases. It covered 291 districts after the sixth phase of implementation.^{viii} Under the scheme, consumers paid the market price for LPG cylinder and the subsidy due on the cylinder was transferred directly to their bank account. The scheme was put in abeyance from March 7, 2014. The scheme was re-launched on November 15, 2014 after being re-named PAHAL (*Pratyaksh Hanstantrit Labh*). Though initially it was mandatory for beneficiaries to have an Aadhaar number for availing of the subsidy, the requirement was subsequently modified to allow payment of subsidy to the bank account even if the account was not linked to the Aadhaar number. In order to receive the subsidy, the beneficiary was required to either provide his/her bank account number to the LPG distributor or to provide his/her LPG consumer information to his bank. Each beneficiary was given a six-month period to link his/her bank account and the LPG connection. By November 2017, 88.57% of the LPG customers (19.23 crores out of 21.71 crores) have joined the PAHAL scheme. In terms of Aadhaar linkage, by November 2017, 81.79% of the accounts covered and 68.26% of the funds transferred were to accounts that were linked to Aadhaar.^{ix}

The mechanism for transfer of subsidy under PAHAL requires a beneficiary to purchase the LPG cylinder at prevailing market price (that is, without any subsidy in the price). On purchase, the subsidy due to the beneficiary is credited to her bank account. In order to mitigate the possible hardship in paying the market price for the first cylinder, the subsidy for the first LPG cylinder was provided to the beneficiary in advance at the time of registration under PAHAL. This ensured that the beneficiaries always had the subsidy amount in advance before every subsequent purchase of LPG cylinder. PAHAL caps the subsidy to one beneficiary at 12 cylinders per year. As on 1 December, 2017, the number of beneficiaries under PAHAL, at 192.3 million was the highest among all subsidy schemes. As of that date, the total subsidy transferred under PAHAL since inception was about INR 545.95 billion.^x It ranked second in terms of the funds transferred directly to bank accounts (the first being MGNREGS that pertains to rural employment).^{xi}

⁶ Aadhaar is a 12-digit unique identity number that is issued to all residents of India by UIDAI (Unique Identification Authority of India) based on demographic and biometric data. For more information on Aadhaar please visit <https://en.wikipedia.org/wiki/Aadhaar>.

The process of ordering a refill cylinder has been made robust and yet simple. To order a refill, a consumer has to send an SMS to a specified number specifying the consumer number. The message is delivered to a centralized order processing platform. The platform accesses the data on the customer and first verifies whether the SMS was received from the mobile number linked to the consumer number. After that authentication the platform orders a refill on behalf of the consumer through an e-mail to the distributor with whom the consumer is linked to.

The systematic digitization of records pertaining to LPG connections for all India launch of PAHAL resulted in unexpected benefits as it led to the elimination of millions of duplicate LPG connections that had been created over the years to benefit from the subsidized LPG being provided by the government. As of 1 April 2017, about 3.6 crores customers were weeded out in the process. The elimination of these connections reduced the leakage of the subsidy.

2.2 Give-it-up Campaign

The “Give-it-up” campaign was launched on March 27, 2015 by the Prime Minister of India.^{xii} The PM appealed to those LPG users who could afford to pay the market price of LPG to voluntarily forego their LPG subsidy. Over time, the campaign was given teeth by limiting the number of subsidized cylinders a beneficiary could buy in a year. The campaign terminated in the subsidy being withdrawn entirely from those who were ineligible (based on the level of income) for a subsidy.

As announced by the government, the funds saved through citizens giving up their subsidy was to be used to provide LPG connections to BPL (Below Poverty Line) families at a subsidized rate. The advertisements on the campaign highlighted the benefits that will accrue to the BPL families, particularly the health benefits to children and women. The process was made easy for well-to-do families by providing multiple options for giving up the subsidy. The subsidy could be given up by either sending an SMS or submitting a filled up form to the distributor. Beneficiaries could also give up the subsidy through online mode by either informing online to the OMC that had provided them the LPG connection or by logging on to the website specially created for the purpose.^{xiii} As on 1 September 2017, about 10.4 million LPG consumers had given up their subsidy. The savings in government expenditure on LPG subsidy would partially fund the subsidized connections to 50 million BPL families.

The policy initiatives were supported by low crude and petroleum product prices in the last two years (2016 and 2017). The government did not pass on the entire benefits of price reduction to the consumers. It chose to retain a substantial part of the benefit from the reduction in the price of crude and LPG in the international market by less than an equivalent downward revision in the domestic prices of LPG.

3. Rollout of the Scheme

The Ministry of Petroleum and Natural Gas (MoPNG) was fully involved in the planning and execution of PMUY. The idea originated from the promise in the “Give it up” campaign that the subsidy given up voluntarily will be used to provide LPG at subsidized rate to the less privileged. The word ‘*ujjwala*’ in Sanskrit means ‘bright or lustrous’. It is a name given to girls. The phrase Ujjwala Scheme therefore connoted a scheme that would brighten the lives of women.

In the meeting with case writers, Mr. Pradhan said, *“We were determined to keep the promise given by the Prime Minister that the savings in subsidy will be given back to people who were less privileged. We were also quite certain that the facility provided will not be entirely free of cost for the beneficiaries. They would have to meet a part of the cost to get committed to the idea.”* Several brain-storming sessions in the ministry with participation from officers from the OMCs finally resulted in the design of PMUY.

It was decided to test the idea of persuading the poor to switch from traditional fuel to LPG. That resulted in ‘smokeless village’ experiment. OMCs would adopt identified villages and provide LPG connections to people in the village to find out the difficulties and queries that would arise in the process of adoption of LPG. The knowledge gained would help in designing campaigns to popularize use of LPG among villagers.

After the experiment, the stage was set for a national roll out of the PMUY. Mr. Ashutosh Jindal, Joint Secretary in the ministry recalled, *“There were nay-sayers. My colleagues in other ministries told me that no benefit scheme on such a large scale had ever been conceived to be implemented in a short time frame of three years.”* All details were discussed in the ministry with pro-active participation by the minister himself. The OMCs were directed to coordinate their efforts to enroll eligible families under the scheme and distribute LPG connections. An inter-organizational structure was created to plan and execute the project under direct supervision of the Minister and the Ministry.

3.1 Identification of Beneficiaries

The first step in the process was the identification of the beneficiaries for PMUY. A rigorous process was designed to ensure that subsidized LPG connection was provided only to the deserving. The starting eligible list comprised BPL families with at least one of the seven deprivations as available from the Socio-Economic Caste Census (SECC) 2011^{xiv} database that had been created by the Ministry of Rural Development based on a comprehensive door to door enumeration survey across the country. The preliminary list of targeted beneficiaries was created at the district (a unit for local administration) level, the taluka level and at the village level.⁷ This preliminary list was accessible to all intermediaries involved in the implementation of the scheme.

With a view to empowering women, the LPG connection would be provided in the name of the homemaker of the eligible BPL family. In order to get the LPG connection, the homemaker of the eligible family had to apply to the nearest distributor in the prescribed form, complete the KYC requirement and provide proof of residential address, Aadhaar number, and details of a bank account. In case the homemaker did not have an Aadhaar number, she was assisted in obtaining the same. It was also necessary to provide the Aadhaar numbers of all the adult members (above 18 years) in the family. In case this information was not available, the applicant was required to provide an undertaking that the complete set of Aadhaar numbers (of the other adult family members) would be provided within six months from the date of allotment of the LPG connection. However, applicants without Aadhaar numbers of all adult family members were made ineligible for paying for the connection through EMI.^{xv} The applicant was required to provide a declaration that none of the other adult members of the family had LPG connection in his/her name.

⁷ A district consists of several talukas and a taluka consists of several villages.

On receipt of the documents, the LPG field official/distributor verified the application details against the SECC-2011 database and carried out field verification of the information provided and to ensure that the family did not already possess an LPG connection. The official/distributor then entered the details of the qualifying applicant on the dedicated web portal that was created for the purpose by the OMCs. The LPG connection was allotted to the applicant only after confirming through machine search of the nation-wide database of customers that the family did not possess an LPG connection anywhere else in the country.

The BPL families whose names were missing in the SECC-2011 list were advised to approach the District Collector to complete the census process for inclusion in the list for a future allotment. If the kitchen of the qualifying beneficiary was deemed unsafe after the field visit (thatched roof house, the absence of elevated platform), the official representing the OMCs was required to facilitate removal of the observed deficiencies through help from the State Government/Local Body or some voluntary agencies working in the region. The details of the number of applicants applied and the number denied the connection (alongwith the reasons for denial) is provided in Exhibit 1.

3.2 Coordination of Implementation

Successful implementation of the scheme required coordination among several organizations – OMCs, banks, local administration, Aadhaar number granting organizations and NGOs operating locally. The stiff targets were to be achieved with as few errors in allotment as possible. In addition, the scheme was to be rolled out simultaneously across the country to guard against undue preference being given to any state/district.

At District Level: The implementation of the scheme at the district level was the responsibility of the District Nodal Officer (DNO) who was an employee of one of the three OMCs. There was no strict rule used for identifying the DNOs, though for the country as a whole, the proportion of DNOs from each OMC was approximately in line with the market share in LPG for the OMC. The DNOs would work with the District Supply Officers (DSOs), the Unique Identification Authority of India (UIDAI) and Banks to help the selected BPL households to obtain the necessary documents and fulfil the requirements such as getting an Aadhaar number (from UIDAI) or opening a bank account in the name of the homemaker for grant of an LPG connection. The DNOs would also work with the district collector as well as the local corporators to ensure administrative support for smooth implementation of the scheme. The DNOs were also responsible for advertisement and promotion campaigns for the scheme to generate enthusiasm among the eligible BPL families. The DNOs were supposed to ensure fair allocation of new LPG connections across distributors from the three OMCs. The proliferation of the use of LPG was supported by congregations organized by OMCs where new users of LPG explained the benefits (from using LPG) to a group of women yet to be convinced about using LPG. These group meetings were organized by the LPG Field Officers /communication departments of the OMCs. Recalling her experience of organizing many such small group meetings, Ms. Sadhana Khera, General Manager (Corporate Communication), IOC, said, *“It was not easy in the beginning to convince women to opt for LPG. However, as they experienced the ease of use first-hand and as positive views spread through word of mouth, we started receiving enthusiastic response in these meetings.”*

At State Level: A state-level coordination committee was set up at each state comprising officers from all the three OMCs, with one of the officers functioning as the State Level Coordinator (SLC). The proportion of SLCs from an OMC was in line with the LPG market share of the OMC at the national level. The Principal Secretary of Food and Civil Supplies of the state was also an invited member of the committee. He provided the link with the general administrative machinery of the government to overcome any administrative hurdles in implementation. The committee met regularly and also met the DNOs as a group to iron out any difficulties faced in implementation. The committee monitored the fulfillment of targets set for the state and districts. Recalling his experiences, Mr. Sanjeev Jain, ED (IOC) who was the SLC for Gujarat said, *“It was a humbling experience to participate in LPG melas⁸ where connections were given en-mass to women who gathered from several nearby villages. Many women told me that it was the first time they had come out of their home village. Their radiant faces at being recognized as individuals for the first time in their life was so rewarding.”*

At National Level: A monitoring cell was created at the national level comprising members from all the three OMCs. The monitoring cell closely interacted with the Ministry of Petroleum and Natural Gas. The Minister, Mr. Pradhan took a personal interest in the progress of implementation. The progress measured in terms of LPG connections given was monitored on a daily basis and compared with the target set. The involvement of the Minister himself became a source of strength for the scheme, as he would not hesitate from intervening to sort out any problem faced that could not be handled by the implementation team. Commenting on the UJJWALA, Mr. Subodh Dakwale, ED (IOC), member of the committee at the national level, said, *“The scheme is a triumph of what is possible to be done by the government. The scheme is transforming society through empowerment of women. A large part of the credit is due to Mr. Pradhan, who took a personal interest in the planning and execution of the scheme. That ensured that the scheme received the required support across ministries and organizations.”*

The process of coordination is depicted in the form of inter-connected blocks in Figure 1.

3.3 Role of LPG Distributors

The LPG distributors were the lynchpin in the implementation of PMUY. The major motivation for them to participate in the process was increase in business opportunity arising from the scheme. They conducted consumer surveys and reached out to the identified households - explaining the benefits of the scheme to them and motivating them to apply. They helped applicants collect and prepare the documents required for getting an LPG connection. They carried out the physical verification of the residences of applicants to ensure non-duplication and safety. They verified the Aadhaar numbers remotely, uploaded the KYC and application details on the portal created for the scheme. They kept the applicants motivated by keeping them informed about the progress of their application. Mr. Rajesh Meena, an officer from IOC and the DNO for Ahmedabad district in Gujarat told the case writers, *“Being local, the distributors play a major role in convincing families to try out the new fuel for cooking.”*

⁸ Mela is a word in Hindi that means congregation or gathering.

4. Enhancing Capacity of Facilities

To meet the requirement of exponential expansion of LPG base and meeting additional demand thereof, immediate action was taken to enhance the production and imports of LPG, production of the cylinders and other LPG equipment, ramping up of the capacity of every component in the supply chain including appointment of new distributors/dealers. Capacity additions were required in transportations, handling, storage and distribution of LPG from the refineries in the country and augmenting import facilities. This required enhancing the capacity of the ports for handling imports, tank capacity for storage of LPG, pipeline capacity for transportation of gas, and bottling capacity. The details of the steps taken and the process of planning and execution were provided by IOC.

4.1 Obtaining Cylinders:

Subsequent to the launch of PMUY, new connection releases increased from 18 million in 2015-16 to 32.5 million in 2016-17. The immediate challenge was to ensure sufficient availability of LPG equipment, primarily cylinders. As the existing vendors were not able to meet the requirement, new vendors were encouraged to set up cylinder manufacturing units and accordingly provisions were made in the procurement process of OMCs. Further, the vendors were encouraged to set up their facilities in the States where LPG penetration was less (Zone 1) – that included Odisha, Bihar, Jharkhand, West Bengal, Chhattisgarh, North East, Eastern UP and Eastern MP. This served the dual purpose of enhancing availability of cylinders near the demand centers as well as investments in economically backward States with additional employment opportunities. A comparison of cylinder manufacturing units before and after the new procurement process was adopted for Zone 1 and Zone 2 (States with higher LPG penetration) is as follows:

Region	Old contract	New contract
Zone 1	7	35
Zone 2	66	126
Total	73	161

Besides setting up facilities for cylinder manufacturing, the scheme also generated investments in setting up industries for manufacturing of a whole range of components required with the cylinders that included pressure regulators, gas stoves, and rubber hoses.

4.2 Obtaining LPG:

During last 3 years, the LPG demand, production and imports had been as given in the table below:

Item	Figures in MMT			
	2013-14	2014-15	2015-16	2016-17
Demand	15.9	17.9	19.4	21.5
Production	10.0	9.7	10.6	11.1
Imports	6.1	8.3	8.7	10.4

The above table depicts that while demand increased by 5.6 MMT, the production went up by only 1.1 MMT, resulting in increased imports by 4.3 MMT i.e. an increase of almost 70%. The challenge was not only to arrange for additional supplies in the international markets but also to handle the same at Indian Ports where the available infrastructure was already stretched. The following actions were taken during last 3 years for ensuring smooth availability of the product:

- Existing suppliers (primarily from Middle Eastern countries) were contacted to enhance the supply and additional quantities were tied up through new international suppliers.
- Against the normal practice of importing Propane and Butane separately, some tie ups were made for importing LPG mix at Port locations that did not have the facility for separately handling and storing Propane and Butane.
- Kandla LPG import terminal which was under shutdown for major revamping, was commissioned thereby adding 1-1.5 MMTPA of additional import capacity.
- Small import locations i.e. Porbandar, Pipavav, Mumbai (Aegis) and Tuticorin, that otherwise were not being used due to economic reasons, were also used to meet additional import capacity requirement.

The significant increase in customers implied that the demand in the future would remain at elevated levels. As production was not expected to keep pace with demand, imports were expected to reach 17 MMT in the next 5 years. To meet this additional import requirement with existing import infrastructure was impossible and required significant increase in the ports facility. The table below shows the additional import capacity and investment planned in different public and private sector ports:

S.N.	Location	Capacity (MMTPA)	Investment (approx. INR million)
1.	Cochin (IOC)	0.6	7000
2.	Paradip (IOC)	2.0	7000
3.	Haldia (BPC)	1.0	8000
4.	Haldia (Aegis)	1.0	4000
5.	Mundra (Adani)	1.4	10000
6.	Pipavav (augmentation by Aegis)	0.6	4000
7.	Dahej (augmentation by GCPTCL)	0.6	3000
8.	Kandla (augmentation by IOC)	1.3	6000

In addition to the above expansion of capacity in existing ports, setting up new import infrastructure at Chara (Gujarat) and Raigad (Maharashtra) is also being explored. With these planned import infrastructure coming on stream, the country will have adequate import handling capabilities and meeting the demand of the new customers joining the clean cooking brigade, will not be difficult. The expected investment in import infrastructure is likely to be USD 1 billion.

4.3 Bottling Infrastructure:

The next bigger challenge was to create adequate bottling infrastructure. As creating Greenfield infrastructure was time taking due to various issues involved in land procurement and statutory approvals, OMCs went ahead with augmenting the existing infrastructure by putting additional filling machines, technological upgradation of existing machines and operating additional shifts. With all these measures, rated bottling capacity was augmented by around 22% and actual bottling by 33%. However, to meet the future requirements a number of Greenfield bottling infrastructure have been planned. OMCs have planned to set up 50 new bottling plants in next 3-4 years with an investment of about USD 1 billion.

4.4 Transport Infrastructure:

Transportation of cylinders from plants to distributors and transportation of bulk LPG from sources to bottling plants also required capacity enhancement. Though transportation by road of petroleum products has disadvantages in terms of safety and environment pollution, the immediate solution to ensure transportation of bulk LPG to the bottling plants was to use additional trucks. In the short term, additional road tankers (around 4000) were inducted, which not only ensured availability of LPG but also generated additional employment.

Presently, around 60-65% of LPG is transported through road tankers. This number will further increase if additional pipeline infrastructure is not created. To minimize the hazards associated with road transportation i.e. safety and environmental pollution, OMCs have planned intensive LPG pipeline infrastructure which includes World's longest pipeline from Kandla to Gorakhpur (approx. 2600 km). The pipeline infrastructure planned during next 5 years is as given below:

S. No.	Pipeline	Capacity (MMTPA)	Investment (approx. INR million)
1.	Kandla – Gorakhpur PL	6.0	90000
2.	Jamnagar – Loni PL	0.75 (addl. capacity)	5000
3.	Kochi - Salem PL	1.5	10000
4.	Paradip – Muzaffarpur PL	2.0	30000
5.	Uran – Chakan PL	1.0	5000
6.	Ennore – Trichy PL	0.7	7000

Some more pipelines i.e. Hassan – Cherlapally, Muzaffarpur – Motihari, etc. are also being conceptualized. On commissioning of these pipelines in next 3-4 years, around 60-65% of the total bulk LPG movement will be through pipeline against current share of around 30-35%.

Summing up the enhancement in capacity of the different segments in the distribution chain, an IOC executive, observed, *“My assessment is that a total of about USD 10 billion would be invested in creating new facilities in the next 3-4 years. The break-up would be: Import Terminals - 1 billion, Bottling Plants – 1 billion, Pipelines – 3 billion, LPG Equipment – 3 billion, and Transportation Infrastructure – 1 billion. The investments would generate significant job opportunities on a continuing basis, particularly in rural India.”*

4.5 Strengthening the Distribution Network:

In order to increase the coverage of the distribution network to rural areas as well as to facilitate the distribution of the increased number of cylinders, the oil marketing companies increased the number of distributors across the country. The number of distributors increased by about 8% during the period 1 April 2016 to 31 October, 2017 (from 17,916 to 19,335). A majority of the new dealers were in Rural Areas. Exhibit 2 provides the state-wise, location-wise, and OMC-wise break-up of the additions in the distributors during the period.

The application process was made online and selection was done electronically (online) through a draw of lots. The system made use of digital mapping of the distribution network through GPRS technology. This ensured fairness and transparency in the process, and also eliminated corruptions in the appointment of distributors.

5. Information Sharing and Addressing Customer Queries

To increase coverage and attract applicants, the campaign was published widely through various media like Print, TV, Radio, Posters, Banners, Hoardings, digital media etc. Information sharing and addressing queries were facilitated through a single point grievance redressed platform through which customer can post their queries or grievances related to DBTL at one place. The call-center seats were also increased from 100 to 350 to handle DBTL related grievances. Various modes like IVRS, SMS, Web and manual forms were made available to make it convenient to customers to post 'Give-it-up' requests. In addition to reaching out to people through media, a unique method was adopted to bring beneficiaries together through organization of LPG Panchayats.

5.1 LPG Panchayats

LPG Panchayat is a community meeting which serves as a platform for LPG consumers to interact with each other, promote mutual learning, and share their experiences. Each LPG Panchayat aims to bring together about 100 women from neighboring areas to share information on how to use LPG safely and economically. The gatherings are also used to spread information about health, environment and empowerment of women. The OMCs plan to organize about 100,000 LPG Panchayats by March 31, 2019. To provide greater visibility to Ujjwala, President of India hosted an LPG Panchayat at his official residence on February 13, 2018⁹. Women from 104 BPL families from across the country participated in the event.

6. The Financials of LPG Connection

The cost of providing LPG connection was INR 3,200 per customer. Of this amount, a subsidy of INR 1600, payable directly to the OMCs (Oil Marketing Companies), was provided by the central government in its budget. The remaining amount of INR 1,600 could either be paid or taken as a loan by the beneficiary at the time of installation. The connection was to be given in the name of the lady of the house. The refill cylinders were to be provided at a subsidized rate to new customers as they were from the BPL segment. If

⁹ The information about the event was provided by IOC.

the loan was taken, it would be adjusted against the subsidy the beneficiary would be eligible for on purchase of gas cylinders in the future. This would be done till the loan was fully paid off. After that, every refill would result in cash inflow for the beneficiary through Direct Benefits Transfer (DBT) to her bank account. For others (non-loan applicants), the mechanism for payment of subsidy towards refill purchase was through the DBT to designated bank account / Aadhaar linked bank account of the beneficiary. The subsidy provided per cylinder since April, 2015 is detailed in Exhibit 3.

7. Role Played by IT

The scheme made significant use of digital governance and information technology played a key role in rolling out every step of the Ujjwala scheme. The specific contributions of IT were as follows:

7.1 Give-it-up campaign:

- OMC software were modified to provide the interfaces to the customers and distributors for posting Give-it-up and Opt-in request with required checks and balances, which ensures that subsidy transfer is also handled according to the opt-out status of customer.
- Dedicated website www.givitup.in was hosted giving all information related to scheme & facilitating customers to post their Give-it-up request.
- Appreciation letters were given to these Give-it-up LPG customers and their name are also displayed in list of scroll of Honor in www.mylpg.in, if they so desire.
- SMS was also given to these customers informing them the name of the BPL beneficiary who has been issues LPG connection because of their giving up of LPG subsidy. Such list showing the name of give-it-up customers and BPL beneficiary is also displayed in www.mylpg.in.

7.2 Issue of new connections and appointment of new distributors:

- Targeted customers under PMUY scheme were filtered out from the huge data base of SECC 2011 based on exclusion, inclusion and deprivation criteria and the list thus prepared was shared with OMCs electronically.
- A software was prepared to record relevant details of the process for releasing PMUY connections. It also recorded and reconciled the benefits provided by OMCs / GOI / State Government and generated the desired reports for all the parties concerned.
- Providing required checks and balances in the software including de-duplication verifications to weed out multiple/ fake / ghost connections from the system.
- Real-time de-duplication checks for new applications (at the time of entry of details) based on names and addresses, Aadhaar numbers and bank account was facilitated by the software.
- An app ('collect') was developed through a third party to digitally map the location of the existing distributors across the country. The information was then used to decide the best locations for new distributors to optimally cover the unserved areas.

7.3 Refilling of cylinders and transfer of subsidy

- Development of software and interfaces for capturing and storing Aadhaar and bank account numbers of 19 crore customers in a short span of time.
- SMSs were sent to LPG consumers in English, Hindi and Vernacular languages, prompting them to get enrolled for Aadhaar and to submit their Aadhaar and Bank account details with their LPG distributors.
- Providing customers an option of remote seeding of Aadhaar and bank a/c through IVRS and website.
- Development of cash transfer modalities based on Aadhaar mode via Aadhaar Payment Bridge and bank account mode which were routed through NPCI.
- Banks were provided with the facility of account verification in which bank account seeded in OMCs database are verified first and then cash transfer is triggered, thus ensuring that amount is received by the beneficiary only.
- SMS confirmation to customers on every stage of refilling process viz. refill booking, cash memo generation, delivery confirmation, triggering of LPG subsidy, seeding of Aadhaar / bank account number from OMC side.

7.4 Monitoring the progress and information sharing

- A shared MIS platform was created for reporting and analyzing distributor-wise, district-wise and state-wise progress of the scheme.
- A dedicated website highlighting all information about the scheme (www.pmujiwalayojna.com) was hosted.
- A dedicated Ujjwala call centre (with toll-free number: 180 2666 696) was made operative from June 2016 to deal with queries pertaining to the scheme.
- Hosting of customer details including supply of LPG refills, subsidy transfer and checking DBTL status on www.mylpg.in for the benefit of customers as well as act as a tool for social audit.
- A 'collect' app was developed by M/s Social Cops to capture images of the beneficiaries with installations. These were displayed on a portal / dash board for providing pictorial information to authorities to take any corrective actions, if required.

8. Notes from Field Visits

8.1 Generalizations from Views of Beneficiaries

The views of beneficiaries were gathered through field visits to beneficiaries located in four states – Gujarat, Uttar Pradesh, West Bengal and Odisha. The lady of the house in whose name the LPG connection was registered was spoken to so as to get an authentic feedback directly from the person whose life had changed the most in the family. Annexure 2 summarizes the conversations with beneficiaries. The generalizations that emerged from the visits and conversations with the beneficiaries were the following:

- Obtaining the connection was easy and smooth.
- Getting a new cylinder was easy and quick. The refill was available between 1-3 days after ordering. Cooking during the period from order to delivery was an issue. There was no uniform solution. Some

- went back to the traditional method of cooking; some said that they ordered anticipating that the gas would be over - thereby losing a few days' fuel; very few had access to another spare cylinder.
- Gas was seen as convenient fuel for certain kinds of cooking and in certain seasons. Certain food items, such as rice and *bajra roties*¹⁰ were prepared using *chullah*. The biggest advantage of gas was being able to cook at short notice. Cooking on gas was also faster.
 - The time released from cooking was being used by women to relax, look after their children and family better and in some case to engage in economic activities (such as sewing) to supplement the family income.
 - The traditional *chullah* continued to be used to a varying extent for cooking and heating (Annexure 1 contains pictures of *chullahs*). *Chullah* was the preferred option for heating water for bathing. One distinctive advantage of *chullah* identified was that it provided heating in winter to family gathered around while the food was being cooked.
 - While the installation of the LPG facility was as per the safety norms (with the oven on a platform eight inches or so above the cylinder regulator) in Gujarat and West Bengal, installation of oven in Uttar Pradesh was invariably unsafe, with the make-shift platform being at a level much lower than the cylinder regulator. Beneficiaries of Ram Manohar Lohiya Grameen Aawas Yojana were provided with kitchen that have a proper slab for keeping oven. (Annexure 1 contains pictures of LPG installations.
 - Deduction of installment for the cost of gas connection from the direct benefit transfer to the bank account of women homemakers appeared to be working satisfactorily – though it could not be verified by the case writers – in the absence of record of bank accounts of beneficiaries. In all cases, as the initial loan amount was still being repaid, no credit of subsidy, in the form of increase in bank balance had yet been received.
 - The beneficiaries raised the issue of high price of refill (about Rs. 800 as in February, 2018). They said that collecting Rs. 800 to buy a refill was a challenge. Several beneficiaries informed that with the rise in price of refill, they had stopped use of LPG.
 - There was a significant reduction in pollution as it was no longer necessary to keep the fire burning as would be done if gas were not available. The lower pollution at home resulted in major health benefits to the family, in particular to women and children. Annexure 1 captures pictorially how cow-dung cakes used as fuel are often stored inside the house – to keep them dry in the rainy season. Use of gas eliminates the need to store these. Thereby besides pollution, space available inside the house also increases.

8.2 Economics of Gas Agencies

Agencies in UP: The case writers had detailed discussions with agencies that distribute Indane (brand name of IOC LPG) gas to the villages visited in UP. The information gathered from the discussions as regards the manner of operations and the profitability of the business are described in the section.

The gas agencies, located around Varanasi, spoken to were:

¹⁰ Bajra is a coarse grain. Rotis are flat breads made out of dough. Bajra roties are flat breads made from bajra dough.

Shri Baldev Indane Gas Service, (for Gokulpur village)
Shri Shirdi Indane Gas Agency (for Lohta village)
Shri Radha Mohan Indane Gas Agency (for Kotara village)

The investments required to be made by the agencies were as follows:

A non-interest bearing deposit of Rs. 500,000/- with IOC.

An approximately 300 sq ft office for administration.

An approximately 5000 sq ft warehouse for storage of LPG cylinders.

All the agencies owned the office and the warehouse. The investment in the properties (including furnishing) at Rs. 2000 per sq ft for the administrative office and at Rs. 400 per sq ft for the warehouse would be Rs. 2.6 million. The cost of land for the warehouse would be about Rs. 3 million.

The operating costs, without imputing any value for the owner's time, consisted of cost of manpower (typically, staffed by 5-6 persons), cost of communication, and cost of electricity. The total operating cost was about Rs. 1,25,000/- per month. The commission paid by IOC for delivery of every cylinder was Rs. 47.50. Typically, the delivery of cylinder was outsourced by the agencies. The deliveries were effected by manual rickshaws (with capacity of 12 cylinders), small pick-up vehicles (with capacity of 40 cylinders) and large pick-up vehicles (with capacity of 60 cylinders). The commission paid for delivery was Rs. 19.50 per cylinder. The deliveries were made on the basis of orders received by the agency. The bills are printed out in advance and deliveries were made against the bills. The cash collected was deposited by the agencies in IOC's account the next day.

Assuming requirement of 7 cylinders per connection, and 350 days in a year, every 1000 connections would generate demand for about 20 cylinders per day. The agencies had about 20,000 customers. The refill demand every day was therefore for about 400-500 cylinders. The demand for refill from Ujjwala customers was likely to be lower. Therefore, the mix of Ujjwala and regular (non-Ujjwala) customers would determine the number of refills demanded from the agencies.

The owners of gas agencies confirmed that additional customers added through Ujjwala had not resulted in any additional investment. However, creation of new agencies under Ujjwala, for better distribution, had resulted in lowering of revenues for the existing agencies due to transfer of customers to the new agency from them. The owners resented this as they claimed that they had expanded their customer base through their own efforts and had retained them through excellent service.

The agents used 'LPG Mela' in areas with low usage of LPG to enroll new customers. Publicity material provided by IOC was used in such gatherings. The cost of organizing such gatherings was not very significant, except when local politicians were invited to such gatherings. For proliferation of use of LPG among the less privileged under the Ujjwala program, OMCs ask the agencies to organize such gatherings, with participation from local politicians. The cost of organizing such gatherings ranged from Rs. 3,000 – 5,000. The agencies get a margin of about 120 per new connection. Therefore, unless they register about

40 customers, the cost of organizing the gathering was not recovered by them. Such mela organizing costs are reimbursable to the distributors on submission requisite claim from OMCs.

Agency in West Bengal: The agency that distributes Indane (brand name of IOC LPG) gas to the village visited in West Bengal was “Taher Indane Grameen Vitrak Agency” located in Mullickpur, South 24 Parganas, Garia, West Bengal. The agency was created under a special government scheme for servicing rural India.

The investments and resources required were as follows:

A non-interest bearing deposit of Rs. 500,000/- with IOC.

An approximately 200 sq ft office for administration.

An approximately 2500 sq ft warehouse for storage of LPG cylinders; the storage capacity was for about 4000 kg of LPG – about 300 cylinders.

The investment in the properties (including furnishing) at Rs. 1,250 per sq ft for the administrative office and at Rs. 400 per sq ft for the warehouse would be Rs. 1.25 million. The cost of land at about Rs. 1 million per *kata* (about 725 sq ft) would be about 3.5 million. Thus the total funds tied up was about Rs. 4.75 million.

The operating costs, without imputing any value for the owner’s time, consisted of cost of manpower (staff of 4 persons – 2 in the office, 1 at the warehouse and 1 mechanic for servicing customers), cost of communication, and cost of electricity. The total operating cost was about Rs. 45,000/- per month. The commission paid by IOC for delivery of every cylinder is Rs. 47.50. The delivery of cylinder was being done by 15 vehicles; the motorized vehicles were essentially a steel cart attached to a motorcycle that was capable of transporting up to 14 cylinders. Of the 15 vehicles, 7 were owned and 8 were outsourced. The commission paid was Rs. 19.50 for delivery of one cylinder. The distributor also provided the option whereby a customer is provided with a discount of Rs. 19.50 per cylinder if they arrange for their own delivery. The deliveries were made on the basis of orders received by the agency. The bills were printed out in advance and deliveries were made against the bills that accompanied the cylinders. The cash collected was deposited by the agency in IOC’s account the next day.

The agency had 16,320 customers, of which 3,218 were Ujjwala customers. Of the Ujjwala customers, 215 customers were deactivated as they had not ordered a refill in the last 180 days. The data on number of refills since July 2017 was as provided in Table 1.

Table 1 Sale of LPG Cylinders

Month	New Ujjwala Connections	Total Ujjwala Refills	Total Number of Refills
July 2017	Nil	823	8,481
August 2017	104	1,049	8,480
September 2017	38	690	7,147

October 2017	44	717	6,717
November 2017	31	1,215	12,322
December 2017	11	777	8,738
January 2018	12	863	9,783
TOTAL	240	6,134	61,668

The above data implied an average refill demand of 8,810 per month. Of this, the average Ujjwala demand was about 876 refills per month.

Mr. Taher confirmed that additional customers added through Ujjwala had not resulted in any additional investment. However, creation of new agencies under Ujjwala, for better distribution, had resulted in lowering of revenues for the existing agencies due to transfer of customers to the new agency from them. He also informed that when he started the agency seven years ago, he had been given 1500 customers transferred from an adjacent agency. He had built the customer base over the years through organizing get-togethers to enroll new customers and door-to-door canvassing.

8.3 Views of a Gram Pramukh¹¹

The case writers met Mr. Mahendra Pratap Singh, Village Head of Gokulpur. The village had a population of 14,000. He raised several concerns about the Ujjwala Program.

He said that the manner of identifying the beneficiaries based on SECC listing left out many families who were poor and deserved to be given an LPG connection under Ujjwala. The names of these people did not appear in the SECC list as they were illiterate and were left out from the survey (that was done in 2011). In addition, the SECC list also suffered from many errors in names that ruled out many families from qualifying under Ujjwala. Further, the SECC list identified the extended family as one unit. One unit (family under SECC) was eligible for only one LPG connection. However, with passage of time, the single unit in 2011 (when the survey was conducted) had split into several families (through marriage) with separate dwellings and kitchens. The SECC did not recognize this and therefore failed to serve the genuine need of people. Annexure 3 provides a picture of SECC listing that captures that manner in which the survey captured the names of all family members in one single unit. The Village Head estimated that there were about 100 such families in his village. He suggested that the Village Head should be given some discretionary quota (about 10% of connections to be given) to include such wrongly omitted families under Ujjwala.

Singh also observed that at Rs. 800/- per cylinder, the price of gas was unaffordable. The beneficiaries found it difficult to collect such a large sum of money to buy a refill. As the subsidy was available post-purchase, it did not help in reducing the amount needed at the time of purchase. He observed that people who did not get subsidy often helped out by funding refill purchase by Ujjwala beneficiaries.

¹¹ Gram Pramukh means 'Village Head'

9. Progress of Ujjwala

The scheme was planned to be rolled out across all states in India. The month-wise progress of installation of LPG connections across states under PMUY since inception is detailed in Exhibit 4. The number of LPG connections in India as of end March 2015, 2016 and 2017 were 148.6, 166.3, 198.8 million respectively^{xvi}. By November 1, 2017 the number of connections had increased to 215.7 million. The increase in the number of connections by over 65 million in a little over two and a half years was unprecedented in any part of the world. April 20, 2018 was celebrated as ‘Ujjwala Diwas’. On that day, 15,909 LPG panchayats were organized across the country and 1.1 million new LPG connections were given to beneficiaries under PMUY.

One of the key concerns of the scheme was ensuring safety. The training imparted to women in small group meetings by the communication departments of the OMCs laid particular emphasis on safety. The women were told the need to turn off not only the knob of the burners but also the knob of the cylinder on completion of cooking. They were also informed to recognize any leakage of gas from the cylinder by its distinctive odour and the need to inform the distributor immediately in case of a leakage. The record of accidents for PMUY and non-PMUY connections for OMCs, over time, is presented in Exhibit 5. The number of cylinders consumed by PMUY customers of IOC in the first year of the scheme is detailed state-wise in Exhibit 6. The average number of cylinders consumed by non-PMUY consumers of IOC for FY 2014-15, 2015-16 and 2016-17 were 7.6, 7.7, and 7.4 respectively.¹²

10. Issues for the Future

While the scheme had been conceived by the Prime Minister, as Minister for Petroleum and Natural Gas, Mr. Pradhan had been the key driver of Ujjwala. The program had been designed to achieve: a) social transformation through empowerment of women, b) elimination of corruption in allotment and consumption of LPG, c) economic transformation of rural India, and d) halting of environmental degradation due to felling of trees for fuelwood. From the beginning, Mr. Pradhan was clear that the program must be achieved with limited burden on public funds. He had been able to motivate the OMCs – and they had responded splendidly to effectively implement the program with use of technology and their reach in rural India. As he sat in his office, one late evening, Mr. Pradhan wondered about the challenges the program would face going forward.

Even after completing 50 million installations, there would still be many households in India without access to clean fuel. Extending LPG facility to these households will have to be on the nation’s agenda to complete the transformation begun by PMUY. If these are not BPL households then a policy call will have to be taken on whether inducement of subsidy should be provided to them.

¹² Information provided by IOC.

The PMUY is being implemented when the crude and LPG prices in the international market are benign. If these were to rise in the future then the cost of use of LPG would rise for the BPL families, unless the subsidy provided is increased to nullify the rise in price. Increase in cost may result in these families going back to traditional fuel. Preventing such relapse will require the government to set aside more funds for energy subsidy. What policy choices should be made when faced with such a situation?

Solar energy is becoming cheaper over time and India is blessed with sunny days throughout the year. It has the advantage of easy deployment to far-flung areas. Could this become the alternative source of primary energy not too far into the future? If that were to happen, what should be the policy glide path for transition from LPG to solar energy for cooking?

Ujjwala had released considerable amount of time of women (as well as men, who would not spend time in collecting fuel wood) as the time and effort needed for cooking would be much less. How could this time be productively utilized to enhance the rural household incomes? What would be the contours of such extensions arising from Ujjwala?

It would be useful to carry out an impact assessment of the program by a credible third party. While internal assessment by the government and OMCs had indicated that there were significant benefits, a third party assessment would be more credible. Should such an assessment be carried out, with free hand being given to the third party?

Figure 1 Implementation of PMUY in Block Diagram

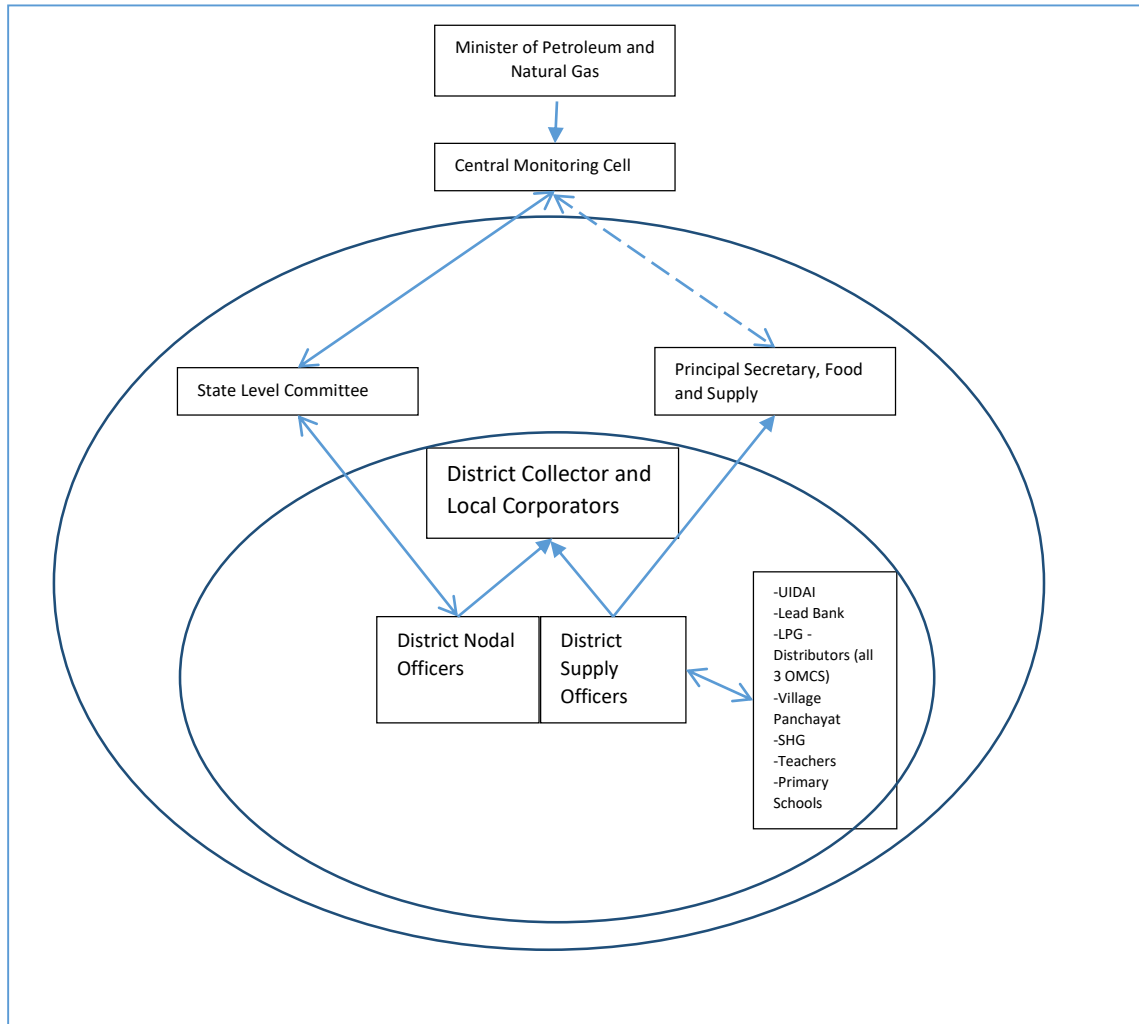


Exhibit 1: Number of Applications and Rejections for LPG Connection under PMUY across States (till 15 November, 2017)

State	# Districts	# OMC Distributors	Application (KYC) submitted	Rejections		Suspected Cases				Total Rejections (a+b+c)	Cleared Application	Connections released by OMC
				Internal Deduplication with UID and Bank details (a)	Incomplete Parameters (b)	NIC Deduplication with name, Demographics	Internal Safety	Other Reasons	Suspect cases that are rejected (c)			
Andaman and Nic. Is.	2	4	2,172	56	2	26	-	-	12	70	2,055	1,685
Andhra Pradesh	13	576	109,527	10,956	1,410	2,258	195	3,128	2,572	14,938	91,281	79,244
Arunachal Pradesh	17	49	6,536	765	10	354	-	-	90	865	5,206	3,192
Assam	34	376	876,136	66,442	18,009	38,968	2,123	12,470	5,161	89,612	733,111	347,976
Bihar	38	1,059	8,044,380	1,506,551	641,123	443,661	6,288	96,148	203,514	2,351,188	5,664,835	4,289,352
Chandigarh	1	6	18	12	-	2	-	-	-	12	4	-
Chhattisgarh	27	402	1,980,695	126,213	71,891	61,541	378	10,066	35,353	233,457	1,759,909	1,661,930
Daman and Diu	2	3	271	51	4	4	-	15	1	56	203	200
Delhi	11	180	6,803	2,190	137	177	6	-	18	2,345	4,445	519
Dadra and Nagar Haveli	1	2	12,877	1,406	127	127	-	-	780	2,313	11,426	11,425
Goa	2	29	1,244	161	6	8	-	3	35	202	1,043	977
Gujarat	33	700	1,403,551	69,123	29,597	24,033	1,290	19,297	32,299	131,019	1,259,796	1,216,439
Himachal Pradesh	12	138	35,393	5,089	528	1,090	-	484	378	5,995	28,353	20,100
Haryana	22	466	455,051	62,016	21,693	18,300	70	8,058	19,724	103,433	354,698	339,471
Jharkhand	24	365	1,213,988	85,797	46,714	41,881	195	11,682	18,938	151,449	1,061,419	927,205
Jammu and Kashmir	22	177	491,792	52,535	28,341	22,493	24	13,162	27,468	108,344	367,641	355,023
Kerala	14	416	36,086	1,464	522	761	86	352	408	2,394	33,244	23,452
Karnataka	30	846	1,034,205	112,707	30,274	26,731	2,455	30,046	13,941	156,922	835,796	714,574
Lakshadweep	1	3	133	1	-	-	-	-	-	1	132	75
Manipur	16	70	24,098	1,309	15	411	-	-	180	1,504	21,863	15,693
Meghalaya	10	33	31,014	375	79	1,204	76	77	31	485	28,649	14,843
Maharashtra	36	1,544	2,359,643	322,073	60,051	48,324	9,431	48,596	63,778	445,902	1,851,933	1,627,432
Mizoram	6	17	892	75	14	18	-	-	1	90	767	498
Madhya Pradesh	52	1,171	3,610,330	297,491	115,179	100,925	6,786	67,347	74,602	487,272	3,083,970	2,922,731
Nagaland	11	50	8,284	607	10	238	50	13	85	702	7,167	5,533
Odisha	30	565	2,268,148	119,507	64,207	43,234	474	27,214	38,953	222,667	2,029,812	1,753,204
Puducherry	3	18	2,672	179	104	121	83	6	19	302	2,293	1,978
Punjab	22	662	592,612	143,663	27,895	24,511	561	14,208	24,670	196,228	384,327	356,365
Rajasthan	33	995	3,075,400	270,634	107,321	73,734	2,971	66,957	81,671	459,626	2,565,768	2,395,965
Sikkim	4	10	796	4	-	8	-	-	3	7	781	511
Telangana	31	208	21,520	2,436	221	1,146	22	72	80	2,737	17,842	41
Tamilnadu	32	1,124	1,102,138	111,456	28,429	32,408	2,041	17,254	24,569	164,454	915,074	790,728
Tripura	8	51	26,726	954	7	1,017	-	-	75	1,036	23,993	12,828
Uttar Pradesh	75	2,817	8,214,500	826,141	287,165	144,693	2,075	300,879	301,222	1,414,528	6,469,710	6,309,031
Uttarakhand	13	215	161,091	15,956	3,834	2,714	14	2,448	4,109	23,899	134,703	131,661
West Bengal	24	951	6,411,666	579,685	347,061	301,133	3,308	133,646	307,295	1,234,041	5,199,074	4,706,038
Total	712	16,298	43,622,388	4,796,080	1,931,980	1,458,254	41,002	883,628	1,282,035	8,010,095	34,952,323	31,037,919

Source: IOC

Exhibit 2: Number of New Distributors Commissioned during April 2016 to October 2017 by IOC

State/ UT	TOTAL	Location-wise				OMC Wise		
		URBAN	URBAN / RURAL	RURAL	RGGLV*	IOC	BPCL	HPCL
Chandigarh	0	0	0	0	0	0	0	0
Delhi	3	3	0	0	0	0	2	1
Haryana	96	30	22	27	17	26	40	30
Himachal Pradesh	7	0	3	1	3	2	1	4
Jammu & Kashmir	20	1	10	1	8	4	3	13
Punjab	57	7	46	4	0	33	14	10
Rajasthan	56	16	17	5	18	26	16	14
Uttar Pradesh	254	47	99	51	57	138	51	65
Uttarakhand	14	3	11	0	0	12	0	2
Total North	507	107	208	89	103	241	127	139
Andaman & Nic	0	0	0	0	0	0	0	0
Arunachal Pradesh	9	0	0	0	9	9	0	0
Assam	37	7	1	3	26	26	8	3
Bihar	49	4	18	5	22	31	9	9
Jharkhand	9	2	2	0	5	4	3	2
Manipur	6	0	0	0	6	6	0	0
Meghalaya	2	1	1	0	0	1	1	0
Mizoram	0	0	0	0	0	0	0	0
Nagaland	5	0	0	0	5	5	0	0
Orissa	28	7	4	5	12	9	14	5
Sikkim	0	0	0	0	0	0	0	0
Tripura	6	1	0	3	2	6	0	0
West Bengal	126	13	30	8	75	56	47	23
Total East	277	35	56	24	162	153	82	42
Chhattisgarh	63	2	0	0	61	36	12	15
Dadra & Nagar Haveli	0	0	0	0	0	0	0	0
Daman & Diu	0	0	0	0	0	0	0	0
Goa	0	0	0	0	0	0	0	0
Gujarat	26	3	11	1	11	18	6	2
Madhya Pradesh	42	8	2	2	30	34	3	5
Maharashtra	85	41	28	9	7	14	12	59
Total West	216	54	41	12	109	102	33	81
Andhra Pradesh	65	6	31	8	20	31	8	26
Karnataka	98	45	13	3	37	49	23	26
Kerala	30	4	11	10	5	14	7	9
Lakshadweep	0	0	0	0	0	0	0	0
Pondicherry	4	0	4	0	0	2	1	1
Tamil Nadu	180	23	99	42	16	104	51	25
Telangana	42	12	18	7	5	17	6	19
Total South	419	90	176	70	83	217	96	106
All India	1419	286	481	195	457	713	338	368
Total (%)	100.0%	20.2%	33.9%	13.7%	32.2%	50.2%	23.8%	25.9%

Source: IOC

*RGGLV: Rajiv Gandhi Gramin LPG Vitaran Yojana

Exhibit 3: Subsidy per LPG Cylinder (14.2 Kg) Month-wise from 2015-17

City	DELHI			MUMBAI			KOLKATA			CHENNAI		
Month	Non-subsidized price	DBT (subsidy)	Net Price	Non-subsidized price	DBT (subsidy)	Net Price	Non-subsidized price	DBT (subsidy)	Net Price	Non-subsidized price	DBT (subsidy)	Net Price
4/1/2015	621	203	418	655	235	420	632	174	458	614	209	405
5/1/2015	616	198	418	649	229	420	628	170	458	609	203	405
6/1/2015	627	209	418	662	242	420	638	179	458	620	215	405
7/1/2015	609	191	418	644	224	420	624	166	458	627	222	405
8/1/2015	585	167	418	619	199	420	599	142	457	604	198	405
9/1/2015	560	142	418	593	182	411	573	116	456	577	172	405
10/1/2015	508	100	408	548	128	420	527	72	455	532	127	405
11/1/2015	545	127	418	575	155	420	555	99	456	560	154	405
12/1/2015	607	189	418	637	217	420	619	161	458	621	216	405
12/9/2015	608	189	419	638	216	421	620	161	459	623	216	407
1/1/2016	658	238	419	687	265	421	671	210	461	672	265	407
2/1/2016	575	156	419	602	181	421	586	127	458	587	180	407
3/1/2016	514	94	419	541	120	421	523	66	456	526	119	407
AvgFY2015-16	587	169	417	619	199	420	599	142	458	598	192	406
4/1/2016	510	90	419	537	115	421	518	62	456	521	114	407
5/1/2016	528	108	419	555	133	421	535	80	455	538	131	407
6/1/2016	549	129	419	577	155	421	574	102	472	560	153	407
7/1/2016	538	116	421	566	142	423	538	91	447	551	142	409
8/1/2016	649	158	491	514	89	425	489	38	451	500	89	411
9/1/2016	598	110	487	491	64	427	468	15	453	478	65	413
10/1/2016	524	44	480	512	83	429	490	35	455	499	84	415
11/1/2016	564	87	477	551	118	433	531	71	460	539	120	418
12/1/2016	553	106	447	606	171	435	587	123	464	594	173	420
1/1/2017	631	188	443	606	169	437	588	122	466	595	172	422
2/1/2017	723	282	441	672	235	437	656	188	468	661	239	422
3/1/2017	738	303	435	758	321	437	745	274	471	747	324	422
AvgFY2016-17	591	145	446	582	154	428	563	103	460	567	154	414
4/1/2017	723	282	441	742	299	443	730	253	477	732	303	428
5/1/2017	631	188	443	650	205	445	635	159	476	639	208	430
6/1/2017	553	106	447	571	122	449	554	77	477	560	125	434
7/1/2017	564	87	477	584	104	480	554	62	491	574	108	466
8/1/2017	524	44	480	543	60	483	503	20	482	533	66	467
9/1/2017	598	110	487	618	127	491	576	86	490	607	132	475
10/1/2017	649	158	491	666	172	494	625	131	494	657	177	479
AvgFY2017-18	623	167	456	619	155	464	592	112	481	608	159	449

Source: IOC

Exhibit 4: Number of Connections Given under the PMUY till November 15, 2017

State	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
Andaman and Nic. Is		-	-	-	-	126	130	219	19	603	92
Andhra Pradesh		-	40	15	427	2,768	9,398	15,931	11,847	11,138	12,044
Arunachal Pradesh		-	-	-	-	-	-	-	-	-	-
Assam		-	-	-	-	1	1	-	-	-	-
Bihar	-	13,369	157,932	292,822	263,056	239,970	252,196	687,823	5,790	6,524	562,647
Chandigarh		-	-	-	-	-	-	-	-	-	-
Chhattisgarh	-	-	-	49,491	111,971	123,907	121,397	228,206	192,063	138,240	143,180
Dadra and Nagar Haveli		-	-	28	166	319	340	421	775	942	220
Daman and Diu		-	-	8	12	15	3	5	1	1	28
Delhi		-	-	3	69	170	29	48	79	97	21
Goa		60	85	295	129	140	125	48	49	14	9
Gujarat	2,769	41,484	108,889	144,090	112,921	94,847	53,027	56,382	42,677	41,478	54,417
Haryana		-	14,415	75,135	71,491	40,005	17,316	19,604	14,659	12,738	13,551
Himachal Pradesh		-	8	4	145	718	574	41	7	31	73
Jammu and Kashmir		-	3	1,333	4,031	82,565	48,613	44,982	33,178	25,967	25,420
Jharkhand	-	8	10	-	-	46,408	44,722	70,511	104,576	66,252	207,955
Karnataka		-	18	142	15,498	144	16	1	14	3	4
Kerala		-	31	735	1,893	1,050	1,890	1,854	1,314	1,058	1,421
Lakshadweep		-	-	-	-	-	-	-	-	-	-
Madhya Pradesh	2,229	86,318	177,459	267,894	348,264	367,715	401,806	75,985	158,562	175,867	180,105
Maharashtra		-	54	38	120,516	131,887	103,287	102,531	94,859	67,717	246,985
Manipur		-	1	15	2	2	2	(15)	16	1	1
Meghalaya		-	-	-	-	-	-	-	-	-	-
Mizoram		-	-	-	-	-	-	-	-	-	-
Nagaland		-	-	-	-	-	-	-	-	-	-
Odisha	-	6,586	59,933	118,650	128,464	143,405	121,866	165,281	89,145	60,436	118,935
Puducherry		-	-	1	7	302	80	27	335	5	3
Punjab		-	91	574	33,427	837	19,599	147,932	16,283	12,451	13,888
Rajasthan	3,526	180,242	383,542	329,108	198,044	153,831	110,907	111,046	65,150	47,548	141,253
Sikkim		-	-	-	-	-	-	-	-	-	-
Tamilnadu		-	102	834	110,750	31,649	20,975	18,050	12,973	9,947	68,357
Telangana	-	-	-	-	-	4	16	13	1	4	3
Tripura		-	-	-	-	-	-	-	-	-	-
Uttar Pradesh	59,956	519,238	576,263	732,064	737,834	690,829	520,732	912,017	387,298	214,021	184,963
Uttarakhand	-	4,531	10,244	11,945	13,100	14,283	11,559	19,631	12,235	5,995	10,417
West Bengal		-	74	176,730	296,114	218,980	274,890	992,951	2,310	2,332	602,547
Total	68,480	851,836	1,489,194	2,201,954	2,568,331	2,386,877	2,135,496	3,671,525	1,246,215	901,410	2,588,539

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Exhibit 4: Number of Connections Given under the PMUY till November 15, 2017 (continued)

State	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	15.11.17	Total
Andaman and Nic. Is	5	51	83	55	199	103	-	-	1,685
Andhra Pradesh	7,787	3,305	1,970	1,332	753	424	12	67	79,258
Arunachal Pradesh	-	24	-	1,420	692	389	394	336	3,255
Assam	-	7,210	17,696	68,667	97,195	33,276	64,365	66,296	354,707
Bihar	494,893	188,670	245,228	283,304	274,188	160,706	99,556	66,228	4,294,902
Chandigarh	-	-	-	-	-	-	-	-	-
Chhattisgarh	69,467	76,524	89,963	93,528	92,695	54,241	45,945	34,413	1,665,231
Dadra and Nagar Haveli	7,335	1	3	85	529	79	178	4	11,425
Daman and Diu	77	37	9	-	-	3	1	-	200
Delhi	1	-	-	-	1	-	-	1	519
Goa	10	5	3	2	2	1	-	-	977
Gujarat	40,650	63,150	93,613	77,257	79,368	58,634	42,527	8,941	1,217,121
Haryana	7,262	6,492	7,567	7,380	12,686	10,205	6,596	2,575	339,677
Himachal Pradesh	-	35	6,885	3,025	2,572	3,288	2,174	614	20,194
Jammu and Kashmir	18,039	21,892	11,902	10,826	15,537	6,342	3,206	1,255	355,091
Jharkhand	45,230	44,091	54,152	57,302	65,996	46,622	38,609	35,950	928,394
Karnataka	26	5	48,262	208,656	231,699	113,986	66,687	31,643	716,804
Kerala	469	931	628	799	2,252	1,931	3,331	2,023	23,610
Lakshadweep	-	-	-	-	-	-	50	26	76
Madhya Pradesh	68,288	89,051	93,698	102,545	109,669	85,906	82,508	52,556	2,926,425
Maharashtra	133,933	87,732	105,315	124,619	134,697	96,055	56,574	22,459	1,629,258
Manipur	2	90	3,878	2,551	3,985	3,499	1,206	486	15,722
Meghalaya	-	-	227	4,567	3,529	1,095	3,541	2,245	15,204
Mizoram	-	-	-	-	26	133	223	116	498
Nagaland	-	146	504	1,736	1,516	655	626	367	5,550
Odisha	76,985	93,285	125,082	137,734	133,362	63,045	73,426	40,292	1,755,912
Puducherry	43	2	32	325	321	350	110	35	1,978
Punjab	8,157	12,206	14,564	18,006	16,843	24,582	13,825	3,293	356,558
Rajasthan	78,019	74,942	104,348	123,029	129,388	84,275	56,368	23,218	2,397,784
Sikkim	-	-	-	-	52	253	89	117	511
Tamilnadu	22,118	21,885	63,562	112,918	137,401	91,823	45,188	24,436	792,968
Telangana	-	-	-	-	-	-	-	-	41
Tripura	-	-	-	2	3,127	3,233	3,157	3,662	13,181
Uttar Pradesh	84,221	76,937	108,496	117,662	144,705	123,979	87,284	32,744	6,311,243
Uttarakhand	3,704	3,263	2,989	2,574	2,426	1,416	985	387	131,684
West Bengal	423,953	362,766	366,208	409,851	356,583	112,875	68,014	39,993	4,707,171
Total	1,590,674	1,234,728	1,566,867	1,971,757	2,053,994	1,183,404	866,755	496,778	31,074,814

Source: IOC

Exhibit 5: Year-wise Record of LPG Related Accidents for non-PMUY and PMUY Connections

Year	Total					Non-PMUY					PMUY				
	Average # of Connections	Accidents		Deaths	Injuries	Average # of Connections	Accidents		Deaths	Injuries	Average # of Connections	Accidents		Deaths	Injuries
		No.	Per mn				No.	Per mn				No.	Per mn		
TOTAL															
April – Oct'17	243,703,443	649	2.66	223	583	218,407,745	560	2.56	196	499	25,295,698	102	4.03	27	75
2016-17	218,196,949	958	4.39	279	765	208,181,140	917	4.40	251	703	10,015,809	44	4.39	28	62
2015-16	192,899,856	492	2.55	139	456	192,899,856	475	2.46	139	456	0	-	-	-	-
2014-15	176,137,834	320	1.82	162	446	176,137,834	320	1.82	162	446	0	-	-	-	-
IOC															
April – Oct'17	118,035,036	420	3.56	147	358	106,421,964	356	3.35	130	313	11,613,072	64	5.51	17	45
2016-17	106,378,049	539	5.07	158	415	101,715,451	516	5.07	145	373	4,662,598	23	4.93	13	42
2015-16	94,293,508	273	2.90	52	179	94,293,508	273	2.90	52	179	0	-	-	-	-
2014-15	86,270,398	162	1.88	63	134	86,270,398	162	1.88	63	134	0	-	-	-	-
HPC															
April – Oct'17	63,760,015	141	2.21	53	139	56,845,928	127	2.23	49	136	6,914,087	14	2.02	4	3
2016-17	56,764,882	264	4.65	73	213	54,072,538	249	4.60	64	201	2,692,344	15	5.57	9	12
2015-16	50,072,432	130	2.60	61	198	50,072,432	130	2.60	61	198	0	-	-	-	-
2014-15	45,738,869	94	2.06	47	172	45,738,869	94	2.06	47	172	0	-	-	-	-
BPC															
April – Oct'17	61,908,393	88	1.42	23	86	55,139,854	77	1.40	17	50	6,768,539	24	3.55	6	27
2016-17	55,054,020	155	2.82	48	137	52,393,152	152	2.90	42	129	2,660,868	6	2.25	6	8
2015-16	48,533,917	89	1.83	26	79	48,533,917	72	1.48	26	79	0	-	-	-	-
2014-15	44,128,567	64	1.45	52	140	44,128,567	76	1.72	52	140	0	-	-	-	-

Source: IOC

Exhibit 6: Per capita consumption of PMUY customers which are installed from 01.05.16 till 30.04.17 (Consumption data considered till 9 November 2017)

State / UT	Consumption of these customers are taken till 9th Nov 2017	PMUY Connection installed For IOC as on 30.04.17
Chhattisgarh	2.34	581,764
Andaman And Nicobar	2.44	1,194
Karnataka	2.48	5
Madhya Pradesh	3.16	1,101,390
Goa	3.45	95
Himachal Pradesh	3.53	15
Manipur	3.58	27
Tamilnadu	3.65	159,456
Andhra Pradesh	3.76	26,457
Rajasthan	3.77	835,174
Maharashtra	3.79	224,086
Odisha	3.82	441,614
Jharkhand	3.83	253,684
Jammu And Kashmir	3.96	70,760
West Bengal	4.19	1,417,905
Uttar Pradesh	4.47	2,694,947
Assam	4.65	2
Gujarat	4.81	404,159
Punjab	4.82	105,003
Kerala	5.00	6,384
Bihar	5.13	1,112,279
Uttarakhand	5.48	65,052
Telangana	6.00	4
Haryana	6.05	128,120
Arunachal Pradesh		
Meghalaya		
Mizoram		
Nagaland		
Pondicherry		
Sikkim		
Tripura		
All India	4.15	9,629,576

Source: IOC

Annexure 1: Picture from Field Visits¹³

Traditional *chullah* (properly built and a make-shift arrangement)



Gas Stoves in beneficiary houses in villages in Gujarat



¹³ Credits: Authors

Gas Stoves in beneficiary houses in villages in Uttar Pradesh



Gas Stove at a beneficiary house at Nagepur (UP). The house was built by Government under the Ram Manohar Lohiya Gramen Aawas Yojana.



Cow-dung stored at a corner of the kitchen in a beneficiary house in Gujarat



Annexure 2: Conversations with Beneficiaries

Beneficiaries in Gujarat

On October 14, 2017, the case writers visited two villages located about 100 km from Ahmedabad and met several beneficiaries of the scheme. The meetings are summarized in the next few paragraphs.

Family 1: Ramanbhai, Village: Kerala, Taluka: Bawla

The Bharat Gas connection to the family was provided by the Rupam Bharat Gas agency owned by Mr. Arjun Shah. The agency serves 7000 customers. Bharat Gas is the brand name used by Bharat Petroleum Corporation Limited (BPCL). Both Ramanbhai and his wife, Maniben worked as day wagers. Ramanbhai received the case writers and informed them that his wife was away at work. The wages earned by Ramanbhai and Maniben were Rs. 300 and Rs. 200 per day. The house had three small rooms and kitchen with thin brick walls. The house was clean with basic furniture – cots and a few chairs. The couple had two sons aged 18 and 14 years. The elder son was pursuing his ITI course and the younger was in the 9th standard. Both the sons stayed in hostels. The family did not own any land. The house had electricity connection.

The gas connection was in the name of Maniben. She had received the connection without any payment. The subsidy due to her every month was being automatically adjusted against the cost of installation of the connection through the bank account that she had opened in her name in a nearby branch of a public sector bank. The gas stove was kept on a stone platform in the kitchen with the cylinder beneath the platform. Ramanbhai offered to make tea for the visitors and responded in the affirmative when asked whether he could cook. He informed that the biggest benefit of gas connection was saving in time for cooking. While earlier, Maniben had to wake up at 4:30 in the morning, she needed to wake up by 6:00 to prepare food for the family before going to work. The saving in time arose from not having to light the fuelwood and also the time taken for cooking on fuelwood. Ramanbhai also saved one day every week that he would earlier spend in gathering fuelwood for the week from the forest and fields around the house. One cylinder lasted about two-and-a-half months. Refill was done using IVRS on the mobile phone. The delivery of filled cylinder took just 1-2 days after order. The courtyard still had the old ‘*chullah*’ used for cooking with fuelwood. It was now used for heating up water for bathing when required and very occasionally for cooking.

Family 2: Pushpaben Maheriya, Village: Kerala, Taluka: Bawla

The Bharat Gas connection to the family was provided by the Rupam Bharat Gas agency. She had received the connection without payment. She too had a bank account in the nearest branch of a public sector bank. In her case too, the cost of installation was being recovered from the subsidy due to her every month through the bank. Pushpaben had lost her husband and lived with her 14-year old son in a small two room, kitchen house. Her occupation was collecting and selling scrap. Her brother too was present when the case writers visited her home. The house had electricity connection. A cylinder lasted about 50 days. She too confirmed that refill through IVRS was easy. There was a ‘*chullah*’ in her courtyard too. It was used for heating up water and for cooking occasionally. The major benefit according to Pushpaben was reduced time for cooking and also being able to cook at short notice.

Family 3: Bhanuben, Village: Kerala, Taluka: Bawla

Bhanuben's story was no different from that of the other two women. She had eight members in her family. One cylinder lasted about 40 days. There was no difficulty in ordering a refill. As with other families, the courtyard still had the old '*chullah*' for cooking with fuelwood.

Family 4: Madhuben Narayanath Prajapati, Village: Goraj; Taluka: Sanand

Madhuben's story was the same as that of other women. She had two daughters who were at home. They had discontinued their studies after completing their tenth standard from the local school. The family owned a store that sold items of daily use. She helped her husband to run the store. She said that certain food items such as '*rotla*' were still made using the '*chullah*' as the gas stove was not appropriate for making *rotlas*. She also said that food cooked in *chullah* was tastier. She also said that it was easier to cook sitting on the floor. The gas stove required her to stand. The family bought the fuelwood needed by paying Rs. 60 for one head-load. The fuelwood thus purchased would be sufficient for cooking for about 3-4 days. The biggest advantage of having a gas stove was being able to cook at short notice and in much shorter time. She also showed the (new) pressure cooker that she used for cooking on gas.

Family 5: Bijuben Hirabhai Rawal, Village: Goraj; Taluka: Sanand

Bijuben's family consisted of five adults and two infants. The family essentially was a joint family of three brothers, two of whom were married. The '*chullah*' was still used for making *rotis* and *rotlas* as it was easier to use the rolling pin while sitting on the floor next to the *chullah*. While tea was invariably made using gas, vegetables sometimes were cooked on the *chullah* as they tasted better. One cylinder lasted about three months. As confirmed by others, getting a refill was simple and quick. A makeshift cradle made from an old *saree* hung in the kitchen with baby sleeping in the cradle. With the gas in a corner, the kitchen was clean and spacious. The lesser stock of firewood and use of *chullah* would benefit everyone and in particular, babies, as they would be experiencing much lower exposure to polluting gases. The brothers worked in an industrial unit. The brothers collected fuelwood on holidays from work. The women were homemakers.

Family 6: Rajiben Ramabhai Patel, Village: Goraj; Taluka: Sanand

Rajiben's family was a joint family of two brothers who lived together with their spouses, mother, and three children. One half of the kitchen was filled with flat dung cakes used for cooking. The family owned five buffaloes that provided the dung used for making the cakes. These were made by the women in the family. Gas was used for making tea and vegetables. One cylinder lasted about two months. They confirmed that getting a refill was easy and quick. One of the key benefits of having gas was being able to cook easily in the rainy season when the dung cakes would be difficult to light as they would be moist.

Family 7: Sabera Biwi Dilawar Khan Sipahi, Village: Goraj; Taluka: Sanand

Saberaben's family was a joint family of several adults and children. All cooking was done on gas and the *chullah* was used only for heating water. One cylinder lasted about one month. They confirmed that getting a refill was easy and quick. The large kitchen had a cot and a few chairs.

Beneficiaries in Uttar Pradesh

On February 21, 2018, the case writers visited three villages located within 20 km from Varanasi and met several beneficiaries of the scheme. Nagepur village is one of the villages adopted by the Prime Minister of India for development. The meetings are summarized in the next few paragraphs.

Family 1: Mangru, Village: Gokulpur

The gas connection was in the name of Minoor. She had received the connection without any payment. The subsidy due to her every month was being automatically adjusted against the cost of installation of the connection through the bank account that she had opened in her name in a nearby branch of a public sector bank. The gas stove was kept on a low make-shift platform in the kitchen so that cooking could be done while sitting on the floor. The family of five consumed about four cylinders per year. Fuelwood was used for cooking in winter months as that provided warmth to the family members gathered around the hearth and also heated up the house. Refill was done using IVRS on the mobile phone. The delivery of filled cylinder took 2 days after order. At over Rs. 800/-, the cost of the cylinder was found excessive by the family. While they would receive a subsidy of about Rs. 300/-, finding such a large amount at the time of purchase was an issue.

Family 2: Rajkumar, Village: Gokulpur

The gas connection was in the name of Pyari. She had received the connection without any payment. The subsidy due to her every month was being automatically adjusted against the cost of installation of the connection through the bank account that she had opened in her name in a nearby branch of a public sector bank. The gas stove was kept on a low make-shift platform constructed from loose bricks in the kitchen so that cooking could be done while sitting on the floor. The family of five consumed about 2-3 cylinders per year. Refill was done using IVRS on the mobile phone. The delivery of filled cylinder took 2 days after order. At over Rs. 800/-, the cost of the cylinder was found excessive by the family.

Family 3: Village: Gokulpur

The gas connection was in the name of Munni Devi. She had received the connection without any payment. The subsidy due to her every month was being automatically adjusted against the cost of installation of the connection through the bank account that she had opened in her name in a nearby branch of a public sector bank. The gas stove was kept on a low make-shift platform constructed from loose bricks and cement slab in the kitchen so that cooking could be done while sitting on the floor. The family of eight consumed about 6 cylinders per year. Refill was done using IVRS on the mobile phone. The delivery of filled cylinder took about one week after order. At over Rs. 800/-, the cost of the cylinder was found excessive by the family.

Family 4: Surendra, Village: Nagepur

The gas connection was in the name of Aarti Devi. She had received the connection without any payment. The subsidy due to her every month was being automatically adjusted against the cost of installation of the connection through the bank account that she had opened in her name in a nearby branch of a public

sector bank. The family lived in a pucca house constructed under the PMAY (*Pradhan Mantri Awas Yojana*). The gas stove was kept on a platform constructed in the kitchen for the purpose. As required for safety, the platform was at a higher level than the cylinder regulator. The family of eight, comprising six daughters and the couple, consumed about 4 cylinders per year. Refill was done using IVRS on the mobile phone. The delivery of filled cylinder took about one week after order. At over Rs. 800/-, the cost of the cylinder was found excessive by the family. The family also possessed a solar battery charged 'chullah' that was used during the period they waited for delivery of refill. The time released by cooking

Family 5: Kanta, Village: Nagepur

The gas connection was in the name of Girja Devi. She had received the connection without any payment. The subsidy due to her every month was being automatically adjusted against the cost of installation of the connection through the bank account that she had opened in her name in a nearby branch of a public sector bank. The family lived in a pucca house constructed under the PMAY (*Pradhan Mantri Awas Yojana*). The gas stove was kept on a platform constructed in the kitchen for the purpose. As required for safety, the platform was at a higher level than the cylinder regulator. The family of nine, comprising six daughters, a son (the youngest child) and the couple, consumed about 2 cylinders per year. Refill was done using IVRS on the mobile phone. At over Rs. 800/-, the cost of the cylinder was found excessive by the family.

Family 6: Kurban, Village: Lohta

The gas connection was in the name of Khatija Bibi. She had received the connection without any payment. The family was earlier using a smaller cylinder (3 kg) that was available from private players in the market. Each refill of that cylinder cost the family about Rs. 300. The 14.2 kg LPG cylinder had been very useful not only in bringing down the cost of fuel but also by reducing the frequency of refills. The gas stove was kept on a platform constructed in the kitchen for the purpose. The family of nine consumed about 10-12 cylinders per year. Refill was done using IVRS on the mobile phone. The refill took about 2 days. The family also had a spare cylinder to tide over the period of delivery.

Beneficiaries in West Bengal

On February 28, 2018, the case writers visited Mullickpur village located about 25 km from Kolkata and met several beneficiaries of the scheme. The meetings are summarized in the next few paragraphs.

Family 1: Muslima Bibi, Village: Mallickpur

Muslima Bibi had received the connection on March 8, 2017 without any payment. The subsidy due to her every month was being automatically adjusted against the cost of installation of the connection through the bank account that she had opened in her name in a nearby branch of Central Bank - a public sector bank. The gas stove was kept on a properly constructed platform, at the correct height as per safety norms, in the kitchen. The stove was very clean – it appeared new. On inquiry, Muslima Bibi confirmed that she took special efforts to keep the oven clean. The family of four (3 kids and mom) consumed about one cylinder every two months. Before getting the LPG connection, she had been using coal for cooking. Refill was

ordered using IVRS on the mobile phone. The delivery of filled cylinder took 3-4 days after order. Because of the delay in fulfilment of order, the refill was typically ordered when Muslima Bibi assessed (based on the cylinder becoming lighter) that the LPG in the cylinder may last just a few days of requirement. The family was clearly giving up a few days of fuel as a result of such imprecise assessment of quantum of gas in the cylinder.

Family 2: Roopa Haldar, Village: Mallickpur

Roopa Haldar had received the connection without any payment. The subsidy due to her every month was being automatically adjusted against the cost of installation of the connection through the bank account that she had opened in her name in a nearby branch of Central Bank - a public sector bank. The gas stove was kept on a properly constructed platform, at the correct height as per safety norms, in the kitchen. However, the platform was close to a window. The curtain on the window as well as a paper calendar mounted on the window were very close to the oven – creating thereby fire hazard. The cylinder was empty and refill had not been ordered as at Rs. 800 per cylinder the cost was too high. The family of four had consumed about 3 cylinders in the one-and-a half years since connection. The cooking was being done using firewood.

Family 3: Jahida Khatun, Village: Mallickpur

Jahida Khatun had received the connection on February 13, 2017 without any payment. The subsidy due to her every month was being automatically adjusted against the cost of installation of the connection through the bank account that she had opened in her name in a nearby branch of Central Bank - a public sector bank. The gas stove was kept on a properly constructed platform, at the correct height as per safety norms, in the kitchen. The family of five (2 sons, the couple, and mother-in-law) consumed about one cylinder every three months. The two school going sons were 10 years and 5 years old. The family still used fuelwood to cook rice and for heating water for bath. According to Jahida Khatun, the major advantage of gas was the ease with which she was able to cook food in the morning – so that she could pack the kids' lunch boxes. She was also able to serve hot food (particularly *rotis*) to the family because of the gas connection. She was saving about two hours a day due to availability of gas. This time was being used by Jahida to teach her children. The very articulate Jahida informed that the refill took about 3-4 days after ordering. The order was placed using IVRS through mobile phone.

Family 4: Amina Bibi, Village: Mallickpur

Amina Bibi had received the connection on March 9, 2017 without any payment. The subsidy due to her every month was being automatically adjusted against the cost of installation of the connection through the bank account that she had opened in her name in a nearby branch of Central Bank - a public sector bank. The gas stove was kept on a properly constructed platform, at the correct height as per safety norms, in the kitchen. The family of six consumed about one cylinder every forty days. The family still used fuelwood to cook rice. According to Jahida Khatun, the major advantage of gas was the reduction in time – from 4 to 2 hours for cooking. The refill took about 3-4 days after ordering. The order was placed using IVRS through mobile phone.

Beneficiaries in Odisha

Beneficiaries in several districts in Odisha were interviewed by investigators on March 5 and 6, 2018. The record of their observations is summarized in the next few paragraphs.

Family 1: Suhana Begum, Village: Mehendipur, Taluka: Aul, District: Kendrapara

M/s Kalinga HP Gas Gramin Vitrak, Demal provided the LPG Connection to Suhana Begum in 2016. The agency owned by Md. Safiullah Sheikh currently serves close to 19,000 customers.

Aged 47 years, Suhana Begum lost her Husband (Azizul Khan) in 2013. She has 4 children comprising a married Daughter (Salma Begum, Age: 26 years) followed by 3 Sons. The eldest Son (Naseem Khan, Age: 24 years) works as an electrical mechanic repairing ACs & other appliances in Bhubaneswar. The second son (Sameem Khan, Age: 22 years) works at a Hotel in Kendrapara, serving as a help. The youngest Son (Karim Khan, Age: 20 years) has completed his schooling and takes active interest in Football.

Suhana Begum works as a Domestic Help for her livelihood. The family does not own any land. Her residence does not have electrical connection. She took the LPG connection with Loan (for the Stove & Refill). She has been receiving subsidy for the refills.

Earlier, Suhana Begum used to cook using a *Chullah*. The 100 kg of firewood required every month used to cost Rs. 400-450. During the rainy season, the family faced great difficulty in getting dry firewood and often she would have to borrow some firewood from her neighbors. The prices of firewood also soar during the wet season. The LPG connection has relieved her of these uncertainties.

With the LPG Connection, she saves considerable amount of time to complete her cooking. As a result, she has been able to augment her work hours and earns about Rs. 600-700 per month of additional income. She also said that the family is free from the smoke that used to fill up the house while cooking. Suhana plans to save money to get a Double Bottle Connection (DBC).

Family 2: Banita Dakua, Plot No-126/83, Pokhariput, Aerodrome Area, District: Khurdha

M/s Global Indane, Bhubaneswar provided the LPG connection to Ms Banita Dakua. Banita's kitchen is well arranged with the stove kept on a platform, about a foot above the cylinder. Earlier, she was using kerosene stove. She was also using firewood whenever kerosene was not available. She has four members in the family; her husband works in a nearby mess.

Banita is a housewife and prepares food three times a day. Usually her cylinders last around 45 days. She saves a lot of time in cooking due to use of double burner of LPG compared to single burner stove. The time saved on cooking is devoted by her to look after the school home-work of her children. She did not face any issues in getting the LPG connection. She gets her refills without any difficulty. She is arranging for money to get the Double Bottle Connection.

Family 3: Hemobati Bage, Village: Jamda, Taluka: Jamda

The Bharat Gas connection to the family was provided by the Ganesh Bharat Gas agency owned by Mrs Minati Hansdah. The agency serves 11000 customers. Hemobati Bage is a house wife. She does some part time work of stitching in the village and earns Rs. 25-30 per day. The house has two small rooms and kitchen with thin brick walls. The house is clean with basic furniture – cots and a few chairs. The family has some land where they do farming of rice and vegetables. They also have 2 cows and 2 goats. The house has electricity connection.

Hemobati confirmed that the subsidy due to her on every refill is being automatically adjusted against the cost of installation of the connection. Hemobati has a bank account in her name in a nearby branch of a public sector bank. The gas stove is kept on a brick platform in the kitchen with the cylinder beneath the platform. She informed that the biggest benefit of gas connection was saving in time for cooking. While earlier, she had to wake up at 4:00 in the morning, now she wakes up by 6:00 to prepare food for the family. The saving in time arose from not having to light the firewood and also the time taken for cooking on firewood. She also saved one day every week that she would earlier spend in collecting fire wood for the week from the forest and fields near the house. One cylinder lasted about two months. Refill booking was done using IVRS on the mobile phone. The delivery of filled cylinder took just 1-2 days after order. The courtyard still has the old ‘*chullah*’ used for cooking with firewood. It is now used for cooking rice.

Family 4: Anupama Sahoo, Village: Bada Basanta, Gabakund, Dist: Puri

Anupama Sahoo is a PMUY customer of Rhea Bharat Gas, Sakhigopal. Before Ujjwala Yojana the family was using wood / cow dung for cooking. It was taking too much time to collect fuel for cooking. It took longer time for cooking and there was lot of smoke in the house while cooking. The LPG connection was installed on 12.1.2017. After using LPG she has more time for herself and family. She now helps her husband in the shop – and that has led to increase in business. She is also able to give more time to her children. She has taken 3 refills so far.

Family 5: Rukmani Rout, Gandamunda Basti, Jagamara, Khandagiri, District: Khurdha

PMUY connection was provided to Ms Rukmani Rout by M/s Global Indane, Bhubaneswar. The kitchen was well arranged and Stove was kept at a platform a foot above the cylinder. During interactions, we came to know that she was using kerosene stove before getting the LPG Connection.

Rukmani works in Reliance Super Store. Earlier with kerosene, cooking would take about 3 hours every day. The time for cooking has reduced by half with LPG with two burners operating simultaneously. The saved time is very relaxing for her. In addition, she is now able to devote much more time to her family. She didn't face any issues in getting LPG connection and the same was installed at her kitchen. She gets her refills smoothly without any difficulty.

Annexure 3: Sample Page from SECC List

MINISTRY OF PETROLEUM AND NATURAL GAS
SECC VILLAGE WISE DATA

DATE:12-May-2016

STATE : UTTAR PRADESH (RURAL)

DISTRICT : Varanasi

TEHSIL : Varanasi

VILLAGE : SAKALPUR

	AHL TIN	NAME	MOTHER NAME	FATHER NAME	GENDER	AGE	RELATION
0	57096600203010000079920114004	null	null	null	FEMALE	15	null
01	57096600203010000079920114005	GOLU	URMILA	DHURE	MALE	6	SON'S SON
02	57096600203010000079920114006	null	null	null	MALE	4	null
03	57096600203010000079920114007	RAJU	HIRAMANI	NABBU	MALE	21	SON
04	57096600203010000079920114008	CHANDU	SUDAMA	AGAR SAAY	FEMALE	19	WIFE
05	59096600203010000079920115001	null	null	null	MALE	34	null
06	59096600203010000079920115002	null	null	null	FEMALE	32	null
07	59096600203010000079920115003	null	null	null	MALE	12	null
08	59096600203010000079920115004	null	null	null	MALE	10	null
09	11096600203010000079920116001	null	null	null	MALE	62	null
10	11096600203010000079920116002	null	null	null	FEMALE	57	null
11	11096600203010000079920116003	null	null	null	FEMALE	19	null
12	11096600203010000079920116004	null	null	null	MALE	11	null
13	19096600203010000080000004001	RAFIK	FATMA	ABDUL KUMAR	MALE	42	HEAD
14	19096600203010000080000004002	SAKILA	JAIYHAN	VISHMILA	FEMALE	37	WIFE
15	19096600203010000080000004003	ROSHNI	SAKILA	RAFIK	FEMALE	12	DAUGHTER
16	19096600203010000080000004004	null	null	null	FEMALE	4	null
17	19096600203010000080000004005	RAHUL	SAKILA	RAFIK	MALE	7	SON
18	19096600203010000080000004006	CHANDANI	SAKILA	RAFIK	FEMALE	3	DAUGHTER
19	11096600203010000080000005001	null	null	null	MALE	62	null
20	11096600203010000080000005002	null	null	null	FEMALE	57	null
21	11096600203010000080000005003	null	null	null	MALE	17	null
22	11096600203010000080000005004	null	null	null	FEMALE	15	null

Endnotes:

- ⁱ <http://www.pmujjwalayojana.com/about.html>
- ⁱⁱ <http://indiatoday.intoday.in/story/pm-narendra-modi-launches-pradhan-mantri-ujjwala-yojna-in-ballia/1/656342.html>
- ⁱⁱⁱ <http://www.businesstoday.in/magazine/features/free-lpg-to-five-cr-bpl-families-imp-plan-of-modi-govt/story/232027.html>
- ^{iv} Ibid
- ^v Ibid
- ^{vi} Information and Guidance on Direct Benefits Transfer, Government of India, Planning Commission, New Delhi. Retrieved from http://planningcommission.gov.in/sectors/dbt/4_implementation.pdf on 6 November, 2017.
- ^{vii} DBT Progress Report –Upto March 2017, Direct Benefit Transfer, Government of India. Retrieved from <https://dbtbharat.gov.in/page/frontcontentview/?id=ODQ=> on 6 November, 2017.
- ^{viii} “Report on DBT and DBTL for the period till 31st October, 2014”. Retrieved from <https://dbtbharat.gov.in/data/documents/Report%20on%20DBTL%20on%2031-10-2014.pdf> on 6 November, 2017
- ^{ix} DBT Progress Report –Upto March 2017, Direct Benefit Transfer, Government of India. Retrieved from <https://dbtbharat.gov.in/page/frontcontentview/?id=ODQ=> on 6 November, 2017.
- ^x Ibid.
- ^{xi} Ibid.
- ^{xii} https://indane.co.in/optout_inf.php
- ^{xiii} “Opt-out-of-subsidy”. Retrieved from http://mylpg.in/docs/Opt_Out_of_Subsidy_for_mylpg_in.pdf on 6 November 2017
- ^{xiv} <http://www.pmujjwalayojana.com/faq.html>
- ^{xv} <http://www.pmujjwalayojana.com/faq.html>
- ^{xvi} The information was provided by IOC