



## **Utilising applied behavioural research to execute subsidy reform in Kuwait**

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# UTILISING APPLIED BEHAVIOURAL RESEARCH TO EXECUTE SUBSIDY REFORM IN KUWAIT

**Hessah Al-Ojayan**

with the contributions of George Gaskell  
and Giuseppe A. Veltri



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# Utilising Applied Behavioural Research to Execute Subsidy Reform in Kuwait

Hessah Al-Ojayan

with the contributions of George Gaskell and Giuseppe A. Veltri

## About the Authors

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## Abstract

The Kuwait government is highly dependent on oil revenues; its fiscal position is exposed to fluctuations in crude oil prices. Reducing expenditures will make Kuwait's government more fiscally robust in the context of volatile oil markets. Reforming subsidies is one way by which the government can reduce expenditures. Electricity and water subsidies in Kuwait represent about 11–20 percent of fiscal expenditures. The goal of this paper is to identify behavioural interventions, 'nudges', that could help save electricity in the household sector, which consumes 50 percent of electricity produced. We developed the nudges by first, reviewing relevant behavioural literature; second, conducting focus group interviews; third, comparing Kuwait to other Gulf Cooperation Council countries; and last, testing the cultural appropriateness of the nudges. The first nudge we propose is making the government subsidy more salient for citizens. The second is activating social norms. The third is framing, adding a message that makes subscribers care for future generations. Lastly, there is the recognition of saving efforts through a reward system.

## Introduction

The Kuwait government is highly dependent on oil revenues; as a result, its fiscal position is exposed to fluctuations in crude oil prices. Reducing expenditures will make Kuwait's government more fiscally robust in the context of volatile oil markets. Reforming subsidies is one way by which the government can reduce expenditures; however, it has proven challenging for the government to do so.

A significant factor delaying ratification of subsidy reform is the widespread public objection to this initiative. Changing regulations and introducing new reforms will impact citizens' lifestyles and the choices available to them. As a result, one should expect resistance to such changes.

Electricity and water subsidies in Kuwait are costly; they represent about 11–20 percent of fiscal expenditures. The household sector consumes 50 percent of total electricity produced and was exempt from the change in tariffs introduced in 2016.

The goal of this paper is to identify behavioural interventions or 'nudges' that could help save electricity in the household sector. Understanding citizens' behaviour with respect to reforms and communicating effectively around such sensitive topics can help reduce conflict and gain the support of citizens.

We developed the nudges by first, reviewing relevant behavioural literature and international nudges; second, conducting focus group interviews; and third, comparing Kuwait to other Gulf Cooperation Council (GCC) countries in terms of recent reforms and energy programmes implemented. Finally, we tested the cultural appropriateness of the nudges (instrument evaluation). Understanding citizens' perspective is an essential input to designing communications and nudges.

The first nudge we propose is making the government subsidy more salient for citizens. The second is activating social norms, for example by motivating individuals to save energy in an effort to enhance the quality of life in their local community. The third is framing, adding a message that makes subscribers care for future generations. Lastly, there is the recognition of saving efforts through a reward system.

Going forward, we intend to test the effectiveness of these four nudges through randomised control trials (RCTs). The results will provide policymakers with evidence as to which nudge is most effective in reducing electricity consumption.

## Post-Fiscal Deficit Energy Reforms in Kuwait and the GCC

Countries across the GCC provide electricity and water at low rates compared to the rest of the world; governments heavily subsidise the price, to the extent that it is fully subsidised for Qatari citizens. In other words, Qataris get electricity and water services free of charge. After the sharp decline in oil prices in 2014–15, Saudi Arabia implemented more reforms than the rest of the GCC countries. Kuwait, Bahrain and Oman have each

implemented at least one reform in the electricity and water sector, while the United Arab Emirates (UAE) only introduced 5 percent VAT in 2018.

Although electricity and water are subsidised GCC-wide, there exist differences among countries in ownership, tariffs and service structures. Electricity tariffs across the GCC are set according to consumption-band methodology: the higher the consumption, the higher the tariff imposed. Kuwait is the only country in the region where tariffs are fixed regardless of consumption. It is also the only country where the government is fully responsible for providing electricity and water. In the rest of the GCC, electricity is provided in partnership with the private sector.

Since the decline in oil prices in early 2015 many countries across the region have modified electricity tariffs.<sup>1</sup> Saudi Arabia has increased tariffs twice. On 28 December 2015, the country announced reforms for electricity and water tariffs. Out of the eight consumption bands, the first two were exempt from the increase in tariffs. According to the country's Electricity and Cogeneration Regulatory Authority, 87 percent of customers would not have been affected by the reform.<sup>2</sup>

Also in Saudi Arabia, the first pay cheque of a cash transfer programme called the Citizen Account Program was issued in November 2017.<sup>3</sup> The goal of this programme is to support low- and middle-income families. The month after the first pay cheque was issued, a new reform to electricity and water tariffs was announced, on 19 December 2017.<sup>4</sup> The eight residential bands were compressed into two and tariffs were increased in both bands; the other sectors' bands were compressed as well and tariffs increased, except on the commercial sector, where the tariff was slightly reduced. The new prices were applied on 1 January 2018. The last reform in Saudi Arabia introduced 5 percent VAT on electricity and water bills in 2018.

In February 2016, Bahrain raised electricity and water tariffs on expats and on citizens who own more than one residence. Tariffs were also increased in the commercial sector for usage of electricity above 5,000 kWh.

On 12 October 2016, the Omani Authority for Electricity Regulation announced it was increasing the tariffs on users who consume more than 150 MW in the commercial, industrial and government sectors; also, peak hour pricing was introduced.<sup>5</sup> The tariffs on the residential sectors remained unchanged. Users in sectors subject to the change previously

<sup>1</sup> 'Due to fiscal deficit, Saudi Arabia increases the price of electricity and gasoline', *AlHurra*, 28 December 2015. Available at <https://www.alhurra.com/a/ksa-raises-oil-and-energy-prices/290546.html> (accessed 1 October 2018).

<sup>2</sup> 'New electricity tariffs', *Ajel*, December 2015. Available at <https://ajel.sa/local/168588> (accessed 1 October 2018).

<sup>3</sup> 'Electricity bill will increase 1000 percent on expats in four years', *AlWasat News*, 3 January 2016. Available at <http://www.alwasatnews.com/news/1064270.html> (accessed 1 October 2018).

<sup>4</sup> 'Saudi Arabia announces new electricity and energy prices', *Arabian Business*, 20 December 2017. Available at <https://arabic.arabianbusiness.com/content/326935> (accessed 1 October 2018).

<sup>5</sup> 'Oman Will Increase Electricity Tariffs Beginning of New Year', *CNBC Arabia*, October 2016. Available at <https://www.cnbcarabia.com/news/view/22400/2017/بداية-في-سلطنة-عمان-في-رفع-أسعار-الكهرباء> (accessed 1 October 2018).

consumed 30 percent of electricity supply and benefited from 20 percent of government subsidies; the new tariffs were expected to save the government OMR 100 million (about \$260 million). Another increase in electricity tariffs was introduced in 2018.<sup>6</sup>

Also in 2016 in Oman, the subsidy figure was added to the electricity bill in order to increase information sharing. Another initiative was launched in that year: Sahim, a renewable energy programme that encourages individuals and institutions to buy and install solar panels on their own. The energy company connects the panels to the local electricity network, and the government buys any extra electricity produced at the cost of production according to certain regulations. A similar initiative was announced in Kuwait in October 2018. Oman is also in the process of installing 40,000 smart meters all around the country. As of October 2019, 17,000 meters had been installed.

## Electricity and Water in Kuwait

### Brief on Electricity and Water

In Kuwait, electricity and water supply/distribution is administered by the Ministry of Electricity and Water (MEW). Table 1 shows that from 2009 to 2016, the Kuwaiti government subsidised close to 95 percent of the cost of electricity and 92 percent of the cost of water. The average electricity pre-tax tariff in the member states of the Organisation for Economic Co-operation and Development (OECD) was approximately \$0.17 in 2014, compared with \$0.006 in Kuwait, according to the International Monetary Fund (IMF) – mainly due to subsidies.<sup>7</sup>

**Table 1: Electricity and Water Subsidies, 2009–16**

Year	Electricity (KWD/kWh)		Fresh Water (KWD/1,000 gallons)	
	Cost (KWD)	Subsidies (%)	Cost (KWD)	Subsidies (%)
2009/10	0.0348	94	7.171	89
2010/11	0.0379	95	8.418	90
2011/12	0.0473	96	10.296	92
2012/13	0.0414	95	11.626	92
2013/14	0.0416	95	10.836	93
2014/15	0.0362	94	9.595	92
2015/16	0.0283	93	5.837	86

Source: Ministry of Electricity and Water, Kuwait

<sup>6</sup> 'Electricity tariffs for 2018', *Argaam*, 3 February 2018. Available at <http://gulf.argaam.com/article/article-detail/673288> (accessed 1 October 2018).

<sup>7</sup> International Monetary Fund (IMF), 'Kuwait: Selected Issues', *IMF Country Report 15/328*, p. 7. Available at <https://www.imf.org/external/pubs/ft/scr/2015/cr15328.pdf> (accessed 1 October 2017).



According to the World Bank in 2015, Kuwait was the eighth highest electricity per capita consumer in the world.<sup>8</sup> This means that electricity users in Kuwait consume nearly five times the world average and almost double that of their wealthy OECD counterparts.

The undersecretary of the MEW, Mohammad Bushehri, noted that air conditioners (AC) drain a significant amount of energy, and if AC users were to increase thermostat temperatures from 21 or 22°C to 26 or 28°C, approximately 20 percent of the cost of fuel used to generate electricity would be conserved. The undersecretary also noted that in 2017 Kuwait was set to burn 350,000 barrels of oil a day to produce energy and water, and by 2035 Kuwait would have to burn one million barrels a day to meet demand.<sup>9</sup>

**Table 2: Electricity and Water Subsidy Bill, 2006–16**

Fiscal Year	Electricity and Water Subsidy (KWD)	Total Fiscal Expenditure (KWD)	Share of Total Fiscal Expenditure (%)
2006/7	1,235,239,422	10,306,377,533	12
2007/8	1,801,963,822	9,698,018,470	19
2008/9	3,127,033,468	18,262,198,464	17
2009/10	2,241,626,761	11,250,709,963	20
2010/11	3,203,044,635	16,221,001,904	20
2011/12	2,939,632,897	17,007,429,079	17
2012/13	3,628,466,877	19,307,556,125	19
2013/14	3,060,877,450	18,903,305,806	16
2014/15	2,729,991,951	21,415,459,256	13
2015/16	1,983,036,951	18,245,866,123	11

Source: Ministry of Electricity and Water, Kuwait<sup>10</sup>

### Energy Subsidy Cost

Annually, Kuwait's government subsidises most of the electricity and water outgoings in the country. It is worth noting that the MEW buys fuel from the Kuwait Petroleum Company at global market prices, making fuel the most expensive component of the subsidy cost (close to 75 percent). Table 2 shows that over the period 2006–16 the electricity and water subsidy bill comprised roughly 11–20 percent of total fiscal expenditures.

<sup>8</sup> World Bank, 'World Development Report 2015: Mind, Society, and Behavior'. Available at <http://www.worldbank.org/en/publication/wdr2015> (accessed 18 October 2019).

<sup>9</sup> 'Bushehri: Direct debit payment to pay electricity bill in instalments', *Alanbaa*, 11 July 2017. Available at <http://www.alanba.com.kw/ar/kuwait-news/759563/11-07-2017> (accessed 1 October 2017).

<sup>10</sup> 1 Kuwaiti dinar (KWD) = \$3.2. MEW subsidy total = second + fourth chapter total expenditures.

The IMF estimates that energy subsidies were somewhere between 5 percent and 6.5 percent of GDP over the period 2012–15.<sup>11</sup>

### **Pecuniary and Non-Pecuniary Approaches to Saving Energy in Kuwait**

To save energy, governments worldwide employ pecuniary and non-pecuniary approaches to influence consumer behaviour. Pecuniary approaches involve price or tax increases. Non-pecuniary approaches involve communications campaigns intended to spread awareness.

Over the years, the MEW has launched several campaigns to promote water and energy conservation in Kuwait. The Tarsheed campaign, launched in 2015 to spread awareness of the importance of smart use of energy, encouraged individuals to use LED lighting to save electricity and smart equipment to control water flow, and also urged households to educate domestic workers on the importance of not wasting water washing cars.

The Kuwait government did not consider pecuniary approaches to alter demand between 1966 and 2016. The decision to adjust prices was mainly motivated by Kuwait's fiscal position. The low energy prices in the country could explain the high tendency to consume, which puts more pressure on the fiscal accounts. Fattouh and Mahadeva show theoretically that a move towards market pricing in Kuwait would complement investment in infrastructure and remove the distortions in the power sector. These authors suggest picking a market price that makes consumers more efficient in their use of energy.<sup>12</sup>

The IMF suggests that over the longer term, price reform for energy products should aim to fully liberalise pricing. The IMF also notes that the appropriate change in prices across energy products depends on a number of factors, including the magnitude of the price increase to bring domestic prices to the relevant global benchmark, the fiscal position, the political and social context in which the reform is taking place, and the time needed to develop an effective communications strategy and social safety nets. A phased approach to reform provides time for households and firms to adjust and helps reduce the impact of the reform on inflation, whereas a large, abrupt increase in energy prices can generate intense opposition to reform. The IMF also notes that in the long term, energy price reforms affect growth positively, given the associated increase in the efficiency of the economy, the boost in public investment, and the enhancement of incentives for greater private investment. In the short term, however, energy price reforms will increase prices for consumers and the cost of inputs for firms; this will lower both real income for households and profits for firms, thus impacting economic activity. Therefore a gradual adjustment in energy prices would be preferable, to help keep inflation under control and to provide time for the productive sector to adjust to the new prices in the economy.<sup>13</sup>

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<sup>11</sup> IMF, 'Kuwait: Selected Issues'.

<sup>12</sup> Bassam Fattouh and Lavan Mahadeva, 'Price Reform in Kuwait's Electricity and Water Sector: Assessing the Net Benefits in the Process of Congestion', *Oxford Institute for Energy Studies Paper MEP 9*, April 2014.

<sup>13</sup> IMF, 'Kuwait: Selected Issues'.

In March 2017, the MEW announced it was increasing electricity and water prices to alter consumption and boost revenues. The Minister of Electricity and Water, Essam Al-Marzouq, announced the new tariffs (Table 3) and claimed that the new electricity and water prices would boost annual collection from KWD 180–200 million to KWD 350–400 million and decrease consumption by 10 percent.<sup>14</sup>

From Table 3 we can see that the residential sector was exempt from the adjustment in tariffs even though it represented 50 percent of total energy consumption (Table 4). The highest increase in tariffs was applied to the government sector (1,150 percent). More adjustments in tariffs are expected to take place after the government installs smart meters. Furthermore, major adjustments will indeed occur if the national assembly approves plans to privatise electricity and water.

**Table 3: Electricity and Water Tariffs, 2017–2018**

Sector	Electricity (fils/kWh) <sup>15</sup>			Fresh Water (KWD/1,000 gallons)			New Tariff Start Date
	Old	New	Increase (%)	Old	New	Increase (%)	
Residential	2	2	0	0.8	0.8	0	-
Investment (Residential) <sup>16</sup>	2	5	150	0.8	2	150	22/08/17
Commercial	2	5	150	0.8	2	150	22/05/17
Government	2	25	1,150	0.8	4	400	22/11/17
Agricultural/Industrial	2	5	150	0.8	1.25	56	22/02/18
Agricultural/Industrial (Producers)	1	3	200	0.25	0.75	200	22/02/18
Others (Chalets, Ranches, Stables)	10	12	20	0.8	2	150	22/02/18

Source: Ministry of Electricity and Water, Kuwait

<sup>14</sup> 'AlMarzouq: New tariff will start as scheduled', *AlAnbaa*, 3 March 2017. Available at <http://www.alanba.com.kw/ar/kuwait-news/726620/03-03-2017> (accessed 1 October 2017).

<sup>15</sup> 1,000 fils = KWD 1.

<sup>16</sup> Kuwaiti nationals living in a residential buy/let unit and who do not own other properties will be charged a tariff equivalent to that for Kuwaitis living in villas/houses in the residential sector; i.e. they will be exempt from the new tariff applicable to the investment (residential) sector.

**Table 4: Electricity Consumption by Sector (in percent), 2012–2017**

Sector	2012	2013	2014	2015	2016	2017
Residential & Investment	50	50	50	50	51	52
Inside Plant	12	12	12	12	12	11
Commercial	7	7	7	7	7	7
Government	8	8	8	8	8	8
Industrial	13	13	13	13	13	13
Energy Loss	10	10	10	10	10	10

Source: Ministry of Electricity and Water, Kuwait

Will the new tariffs succeed in altering consumption? For a price strategy to be effective in managing high energy demand, a significant price increase would need to be created, given that the price elasticity of demand is very low or inelastic.

Fattouh and Mahadeva assume a water and electricity long-run elasticity of demand of  $-0.5$  in Kuwait and accordingly predict that a rise in market prices to ten to eleven times the 2016 level would lower demand by one third, assuming that the base or subsistence level of demand (which is completely inelastic; above it all other demand is elastic) is zero.<sup>17</sup> These authors argue that if this level of subsistence demand is proven to be higher than zero – in other words, demand is more inelastic than they assume – then the changes in prices they propose would alter demand by less than expected. Note that the residential price of electricity had not changed in Kuwait since the 1960s.

The recent adjustment in water and electricity tariffs would be a good opportunity for the government to assess how responsive demand is to changes in price in all sectors. The exception is the residential sector, which the government exempted from the increase in tariffs, as we have seen.

This uncertainty in predicting how pecuniary approaches will curb demand calls for considering different types of non-pecuniary approaches to encourage conservation behaviour – and specifically for behavioural interventions or ‘nudges’. Behavioural interventions targeted at accelerating revenue by improving late payment and bad debt collection have proved to be successful in different countries; Kuwait has similar challenges and could find some of the nudges discussed in the next section inspiring.

<sup>17</sup> Fattouh and Mahadeva, ‘Price Reform in Kuwait’s Electricity and Water Sector’.

## Introducing Behavioural Science

Before we move on to reviewing literature on relevant behavioural tools and their applications worldwide, it is essential to highlight the main energy consumption challenges putting pressure on Kuwait's government fiscal accounts. These challenges include:

1. **High consumption rates.** High consumption could be explained by low energy prices relative to personal income, lack of awareness/marketing of clean-power options, lack of information on real-time consumption or infrequent feedback on consumption. With conventional energy meters, consumption information is conveyed to consumers with a delay rather than in real time. Infrequent and limited feedback provisions prevent users from being aware of the amount of energy required to power a given appliance.
2. **Late payments.**
3. **Overdue debts** (Table 5).



**Table 5: Overdue Payment Balance (KWD) by Type as of 30 April 2017**

	Residential	Investment (Residential)/ Chalets	Public	Industrial	Agricultural	Commercial	Services/ Embassies	Total
Late Payment <sup>18</sup>	113,557,532.63	19,717,009.87	23,608,642.01	11,598,021.98	4,152,808.34	6,222,289.80	368,093.23	179,224,397.85
Instalment <sup>19</sup>	20,996,040.64	-	-	-	-	-	-	20,996,040.64
Unsettled <sup>20</sup>	6,441,876.65	12,634,769.30	-	131,764.94	37,638.16	2,029,063.72	39,719.32	21,314,832.09
Legal Claims <sup>21</sup>	8,497,275.69	406,819.84	-	246,039.93	92,186.54	98,560.38	806.75	9,341,689.12
Total Balance Due	149,492,725.61	32,758,599.00	23,608,642.01	11,975,826.84	4,282,633.05	8,349,913.90	408,619.30	230,876,959.70

Source: Ministry of Electricity and Water, Kuwait

<sup>18</sup> Overdue payments that were not settled, rescheduled in the form of instalments or legally pursued.

<sup>19</sup> Overdue payments that were rescheduled in the form of instalments by a bank.

<sup>20</sup> Overdue payments from consumers who cannot be reached.

<sup>21</sup> Overdue payments pursued by legal action.

## Review of Relevant Behavioural Tools

In this section we outline twelve relevant behavioural tools that have been discussed in the literature along with their impact. We then discuss the focus group interview results and end with four nudges suitable for Kuwait.

**Loss aversion:** Knetsch provides evidence that people commonly demand more to give up an entitlement than they would pay to acquire the same good, or people tend to prefer avoiding losses much more than they would prefer new gains.<sup>22</sup> Bager and Mundaca showed that loss-framed, salient information coupled with smart meters reduced demand for energy in Denmark by 7–11 percent compared to unframed information.<sup>23</sup>

**Status quo bias:** Individuals make most judgements and choices automatically, not deliberately. Therefore small changes to the choice architecture in which decisions are made can have strong effects on behaviour.<sup>24</sup> Samuelson and Zeckhauser provide evidence that shows individuals have a tendency to select the status quo alternative; that is, do nothing or maintain the default option when presented with other alternatives.<sup>25</sup>

**Feedback:** Providing feedback is an important tool to reduce energy consumption, as it makes users aware of their consumption and it allows them to learn and form habits. An early study by Seligman, Darley and Campbell provided subjects with feedback on their use of AC systems. After one month, the subjects reduced their consumption by 10.5 percent compared to the control group.<sup>26</sup>

The British Office of Gas and Electricity Markets conducted a study regarding how behavioural interventions can encourage energy conservation. The results showed that the deployment of smart meters coupled with the installation of real-time information displays resulted in energy savings of 2–4 percent more than in the absence of real-time display.<sup>27</sup>

**Goal setting:** Goals influence the direct performance and achievements of individuals if the goals are set at the right level of difficulty. Becker tested the effects of combined goal setting and feedback on conservation behaviour. An easy goal was to save 2 percent of energy while a difficult goal required saving 20 percent of energy. The study revealed that

<sup>22</sup> Jack Knetsch, 'Preferences and Nonreversibility of Indifference Curves', *Journal of Economic Behaviour and Organization* 17/1 (1992), pp. 131–9.

<sup>23</sup> Simon Bager and Luis Mundaca, 'Making "smart meters" smarter? Insights from a behavioural economics pilot field experiment in Copenhagen, Denmark', *Energy Research & Social Science* 28 (2017), pp. 68–76.

<sup>24</sup> World Bank, 'World Development Report 2015'.

<sup>25</sup> William Samuelson and Richard Zeckhauser, 'Status quo bias in decision making', *Journal of Risk and Uncertainty* 1/1 (1988), pp. 7–59.

<sup>26</sup> Clive Seligman and John Darley, 'Feedback as a means of decreasing residential energy consumption', *Journal of Applied Psychology* 62/4 (1977), pp. 363–8.

<sup>27</sup> Organisation for Economic Co-operation and Development (OECD), 'Behavioural Insights for Environmentally Relevant Policies: Review of Experiences from OECD Countries and Beyond' (Paris: OECD, 2016).

the difficult-goal group was the only one which used significantly less electricity.<sup>28</sup>

Karlan et al. show that the combination of goal setting and monthly reminders sent by three different banks in Bolivia, Peru and the Philippines helped clients meet their savings goals. The researchers' results suggest that the most effective reminders are those that remind people of both financial incentives and savings goals.<sup>29</sup>

**Timing:** The timing of communication could have substantial effect on recipients. The Behavioural Insights Team (BIT) in the UK collaborated with the Courts Service to find whether well-timed text messages might increase fine payment rates. The team found that sending individuals text messages reminding them to pay their court fines 10 days before bailiffs were due to arrive increased payment rates by two to three times, and personalising the message increased the amount even more.<sup>30</sup>

**Personalisation:** When a message deals with possible negative consequences, personalisation may make those consequences seem more likely by conveying that the sender has accurate and detailed records and will act on them. The BIT collaborated with the Driving and Vehicle Licensing Agency (DVLA) to test whether different messages could improve the response rates of individuals who failed to tax their vehicles. The trial involved testing the original DVLA letter against one that included an image of the drivers' own vehicles. The results show that the image letter increased relicensing rates by 9 percent compared to the original letter.<sup>31</sup>

**Salience and framing:** The way in which facts are presented has a great influence on whether they are absorbed and how judgements are reached.<sup>32</sup> Bordalo, Gennaioli and Shleifer mark an attribute as salient if it stands out among a given good's/product's attributes relative to that attribute's average level in the choice set. The authors propose a theory in which consumers attach disproportionately high weight to salient attributes, and hence end up leaning towards goods with higher quality/price ratios.<sup>33</sup>

The BIT collaborated with New South Wales' Department of Premier and Cabinet and its Office of State Revenue to improve payment levels from individuals who failed to respond to penalty reminder notices. The intervention involved printing a red 'Pay Now' stamp in a prominent position on letters received by the treatment group, alongside a number of other changes to make the messaging more salient. The results show that there was a 3.1 percent increase in the payment rate.

<sup>28</sup> Lawrence Becker, 'Joint effect of feedback and goal-setting on performance: A field study of residential energy conservation', *Journal of Applied Psychology* 63 (1978), pp. 428–33.

<sup>29</sup> Dean Karlan, Margaret McConnell, Sendhil Mullainathan and Jonathan Zinman, 'Getting to the top of mind: How reminders increase saving', *Management Science* 62/12 (2016), pp. 3393–411.

<sup>30</sup> Behavioural Insights Team (BIT), 'EAST: Four Simple Ways to Apply Behavioural Insights' (2014). Available at <http://www.behaviouralinsights.co.uk/publications/east-four-simple-ways-to-apply-behavioural-insights> (accessed 1 October 2017).

<sup>31</sup> *Ibid.*

<sup>32</sup> World Bank, 'World Development Report 2015'.

<sup>33</sup> Pedro Bordalo, Nicola Gennaioli and Andrei Shleifer, 'Salience and consumer choice', *Journal of Political Economy* 121/5 (2013), pp. 803–43.

**Satisficing:** Various simplification strategies may help reduce cognitive overload and facilitate more effective decision-making with regard to energy consumption. These might include making a desired action easier, quicker and more convenient (e.g., automating relevant technology). Unnecessary complexity and sensory overload should be avoided by framing messages in a clear, concise and comprehensible format.

**Shared group identity:** Creating a shared group identity where people can feel their individual contribution is important, and emphasising that many other consumers are also actively saving energy (i.e., capitalising on descriptive social norms), may help reduce free-riding and social loafing in group settings. Making any shared outcomes or collective achievements more salient, and publicly acknowledging the efforts of individuals, may also help motivate people to contribute to the greater good. Experimental work suggests too that embedding social dilemmas and intragroup conflict in intergroup competition may reduce free-riding,<sup>34</sup> and that inducing a sense of social inclusion may increase pro-social behaviour by fostering empathetic concern for others.<sup>35</sup>

**Perceived trust:** Since trust serves as a decision-making tool for reducing cognitive complexity and may influence how people respond to various risks, information and incentives are likely to be more motivating – and therefore have greater behavioural impact – if they stem from credible, trustworthy sources. In support of this notion, Craig and McCann found that messages identified as originating from a high-credibility source were associated with significantly more customer requests for energy conservation information, as well as greater actual electricity savings, than the same messages originating from a low-credibility source (e.g., a local electrical utility).<sup>36</sup>

**Intrinsic and extrinsic rewards:** Non-pecuniary rewards such as praise, recognition and social approval should be capitalised on to incentivise energy conservation. While financial incentives are often used in efforts to promote pro-environmental behaviour, research suggests that such approaches may compare unfavourably to non-monetary interventions in terms of producing durable behaviour change over the longer term.<sup>37</sup>

**Social identity effect – an appeal to local identity and its collective good:** If individual incentives are not enough to change behaviour, other sources of motivation are needed. Tajfel and Turner proposed that the groups (e.g., social class, family, football team etc.) to which people belong are an important source of pride and self-esteem.<sup>38</sup> Rather than saving being framed as an individual issue, it could be framed as a collective effort. This is

<sup>34</sup> Anne Gunnthorsdottir and Amnon Rapoport, 'Embedding social dilemmas in intergroup competition reduces free-riding', *Organizational Behavior and Human Decision Processes* 101/2 (2006), pp. 184–99.

<sup>35</sup> Jean Twenge, Roy Baumeister, C. Nathan DeWall, Natalie Ciarocco, J. Michael Bartels, 'Social exclusion decreases prosocial behavior', *Journal of Personality and Social Psychology* 92/1 (2007), pp. 56–66.

<sup>36</sup> C. Samuel Craig and John McCann, 'Assessing communication effects on energy conservation', *Journal of Consumer Research* 5/2 (1978), pp. 82–8.

<sup>37</sup> P. Wesley Schultz, 'Strategies for promoting proenvironmental behavior: Lots of tools but few instructions', *European Psychologist* 19 (2014), pp. 107–17.

<sup>38</sup> Henri Tajfel and John Turner, 'The social identity theory of intergroup behaviour', in William G Austin and Stephen Worchel (eds.), *Psychology of Intergroup Relations* (Chicago: Nelson-Hall, 1986), pp. 7–24.

achieved by allocating a percentage of savings achieved by each family to a trusted organisation in the local community.

## Focus Group Interview Results

Our research project aims at identifying promising nudges that could enhance savings in electricity and water consumption in Kuwait. The investigation of potential nudges started with qualitative interviews focusing on the knowledge of and attitudes towards domestic water and electricity use of householders (see the Appendix). Identifying the obstacles that inhibit citizens, parliament and the Kuwaiti government from efficiently saving energy will help in choosing the appropriate type of behavioural interventions.

The focus group interviews revealed the following barriers to electricity and water reforms in Kuwait:

1. **Lack of information regarding the electricity and water subsidy cost.** It was clear that most participants were unaware of the true total cost of electricity per kWh and the proportion subsidised by the government (80–90 percent). Most participants were also unaware of the total cost of the electricity and water subsidy, as this figure is not reflected in the fiscal account; rather it is distributed over several budget ‘chapters’.
2. **Weak communication channels between the MEW and energy users.** Users do not receive periodic notifications or bills from the MEW with respect to their consumption. The MEW obtains electricity and water readings directly from users and no guidelines are set with respect to how frequently users should submit readings.
3. **Electricity and water meters do not reflect consumption in real time.** Users are therefore unable to monitor and track their usage effectively.
4. **Lack of benchmarks to which citizens can compare their consumption.**
5. **Lack of confidence in the government’s ability to efficiently use savings from electricity and water.**
6. **Concerns regarding inflation.**
7. **Hopes that the government will write off citizens’ bad debts as it did in 2005.**
8. **Views that the government does not convey seriousness with respect to saving energy.**
9. **Views that the government is not aggressive enough with respect to implementing certain measure.** For example, it often announces a certain change, then defers for further study. Participants are conscious that something needs to be done.

The barriers listed above could also provide insight into the opportunities the government has to reform consumers’ behaviour. Overall, one might conclude that people would not be surprised to see new policies around utility provisions and would not actively object.

One consideration to keep in mind is the challenge of persuading wealthy families, who are in all probability a group for whom conspicuous consumption is a way of life, that what amount to small savings are worthwhile. A further consideration is the technical



infrastructure. Metering and smart metering of electricity and water use, and an effective charging regime, are a vital component in influencing domestic usage and behaviour. With metering comes the possibility of feedback on household consumption and efficient charging regimes including, for example, spot pricing to reduce peak loads.

## Potential Nudges

In light of both the scientific literature and the acquired contextual knowledge, we have identified four interventions as ‘nudges’ that can be either implemented singly or combined for tackling the issue of reducing electricity consumption. The effectiveness of these nudges can only be ascertained by carrying out a field experiment.

The team visited Kuwait with two objectives: (1) to find out about domestic energy use, tariff structures, payment methods and the introduction of smart meters, and (2) to learn about cultural values, norms and behavioural routines that might have a bearing on the impact of different nudges. This latter objective was deemed important as much of the nudge literature comes from the US and Western Europe or from countries such as New Zealand that are ‘Western’ in orientation. It is an open question whether successful nudges from these Western countries would translate to Kuwait. Our conversations with Kuwaiti informants suggested that some nudges would simply not work. For example, consider this nudge from the UK: when billing households, they are told that their electricity consumption is X percent above the average for dwellings of the same size on the street. The consensus opinion of our Kuwaiti informants was that this would have no impact whatsoever. Also, most subscribers do not pay their bills on time, and hence percentages will not reflect real consumption. In addition, participants mostly thought that addressing the environmental impact of consumption would not influence how they behave.

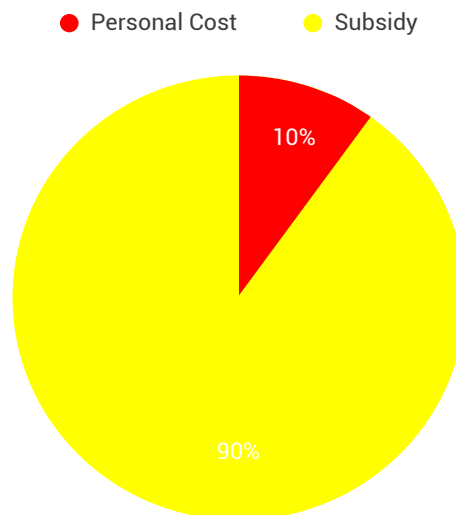
The four nudges selected for the behavioural study were deemed by our informants to be the most likely to have an impact. Also, we are limited to four nudges in order to have sufficient sample sizes to be confident of any observed impact, as our overall sample size is 1,200 participating households (only 1,200 houses were set to have smart meters by April 2019), segmented as villas and semi-detached properties.

We have selected four nudges that are scalable and relatively easy to implement in a short period of time. Some of them are designed in terms of restructuring or adding new information to the existing bill. Previous implementation has demonstrated that even small changes in documents such as bills can produce substantial change in behaviour in the targeted population. The proposed interventions are:

1. **Salience of subsidy.** This consists of restructuring information in the electricity bill in graphical form (Figure 1). The rationale for this intervention is that the exploratory research conducted has shown there are people not aware of the level of subsidy. This intervention is essentially based on the psychological effect of framing. The subsidy cost is included when billing subscribers in other countries in the GCC, specifically in Oman, Bahrain and Abu Dhabi.<sup>39</sup>

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<sup>39</sup> Electricity and Water Authority, Kingdom of Bahrain, ‘Understand your bill’. Available at <http://www>.

**Figure 1: Subsidies by Government**

2. **Activating social norms.** The rationale behind this nudge is that individuals with high incomes may find monetary saving from reducing energy not worth the effort, and therefore may be less motivated to alter their consumption. Instead, those individuals may find reducing consumption worthwhile if savings go to a good cause. For instance, total energy savings from all households could be allocated to improving the facilities or services in the local community, such as the Co-op society, schools, or other public institutions which are widely supported by the local community (as we have been told by the focus group participants). In this way, we could use people's social identity as a motivator in contributing to a better community where they live, and at the same time the social pressure from the community will act as a deterrent to free-riding behaviour.
3. **Framing in the context of health or children.** The third nudge consists of adding a highly visible message to the energy bill, linking energy consumption to health or future generations' wealth or quality of life. The rationale is to reduce the psychological distance between citizens and the notion of being healthy or economically sustainable, by reminding them to care for future generations.
4. **Symbolic and social rewards.** This nudge sets an award system for citizens who succeed in altering their consumption and meeting their targets. The reward does not have to be financial; it can rather be symbolic and social. The reward system is based on uses and gratifications theory (UGT), which was initially developed by Maslow.<sup>40</sup> Many contemporary mobile apps apply the gratification theory to get people 'hooked'. They all exploit the psychological gratification that we receive from being told that we have achieved something (even though such achievement is fictional or of little im-

ewa.bh/en/Customer/BillsTariffs/understand-your-bill (accessed 8 April 2019); Abu Dhabi Distribution Co., 'Understand your bill'. Available at <https://www.addc.ae/en-US/business/Pages/UnderstandYour-Bill.aspx> (accessed 8 April 2019).

<sup>40</sup> Abraham Maslow, 'A theory of human motivation', *Psychological Review* 50/4 (1943), pp. 370–96.

portance). The use of ‘achievements’ can be shared via social media and could act as a motivator for sustainable performance or a basis for comparison with peers.

Note that the above nudges can be used in combination. For instance, the ‘awards and gratification’ approach would work well with the social identity effect: ‘I am proud that my neighbourhood has been awarded the badge of honour for prudent electricity usage.’

However, during the pilot and testing stage it is better to deploy each nudge separately to understand its unique effectiveness. In the next subsection, we will briefly outline a preliminary proposal for how we could test the nudges.

### Testing the Effectiveness of Proposed Nudges

The best way to test these interventions is through field experiment. In order to test these interventions, a sample of households with smart meters should be compiled. The size of this sample may vary; the consequence of such variation is less or more reliability in the statistical analysis that will evaluate the effectiveness of each behavioural intervention. The rationale for the design is based on the logic of a randomised controlled trial, in which one or more intervention or treatment groups are ‘treated’ with one of the four nudges selected, and a control group, which does not receive a nudge, is present. A comparison of the performances of the control group and the treatment group will allow us to ascertain whether the interventions were effective. We estimate that an observation period should be a minimum of three months and ideally six months.

## Conclusion

Reforming subsidies is one way by which the Kuwait government can reduce expenditures and become more robust in the face of fluctuations in oil prices. Electricity and water represent a significant portion of the government’s fiscal expenditures. Overconsumption of energy by households is putting pressure on the budget. Behavioural science could be used to direct better use of electricity and water.

The goal of this paper is to identify behavioural interventions, ‘nudges’, that could help save electricity in the household sector. We have noted nine barriers to energy reform. We highlight four here:

1. Lack of information regarding the electricity and water subsidy cost.
2. Weak communication channels between the MEW and energy users.
3. Inability to monitor real-time consumption.
4. Lack of confidence in the government’s ability to efficiently use savings from electricity and water.

We then proposed four potential nudges that could prove to be effective in curbing excessive consumption. The first nudge we proposed is making the government subsidy more salient for citizens by adding it to the energy bill. The second nudge is activating social norms, for example motivating individuals to save energy to enhance the quality of life in their local community. Third is framing, adding a message that makes subscribers care for future generations. Last is recognition of saving efforts through a reward system.

We intend to test the effectiveness of the four nudges through RCTs. The results will provide policymakers with evidence as to which nudge is most effective in reducing electricity consumption. After all, before making costly commitments to new policies it is rational to find out whether the new policies are likely to deliver benefits.

## Appendix: Focus Groups Interview Details

Sector	Nb of participants and gender	Education	Age	Location
1	5 males and 1 female	5 Bachelor's degrees, 1 Master's degree	21–29	Private Diwaniya
2	6 males	6 PhD holders	30–38	Kuwait University
3	5 males and 6 females	2 university students, 6 Bachelor's degrees, 2 Master's degrees, 1 PhD holder	19–45	Kuwait University
4	1 male member of parliament	Bachelor's degree	30	National Assembly



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**Workers scaling the exterior of the iconic Kuwait Water Tower, January 2015.**

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