Reflecting the value of vital resources: considerations for energy and water price reform

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Countries seizing opportunities for reflecting costs

- Australia – beginning 1980s: water extraction caps, property rights and platforms for trading water
- Iran – 2010 “Targeted subsidy reform” gas and fuel product price rises, along with tariff reform for electricity, water and plan for subsidy reduction on basic foodstuffs, coupled with universal cash transfers
- India – 2013 incrementally raising diesel prices, cap on subsidized LPG; several hikes in excise duties on petrol and diesel Nov 14 – Jan 15
- Morocco – 1980 – 2006: municipal water price reform Prices increased by four-to-seven fold during the period. Last of diesel subsidies removed 1 January 2015
- Indonesia ends subsidy to gasoline, moves to ‘fixed’ subsidy on diesel Jan 2015
What happens when you mention the S word?

1. What is the rationale for current pricing system?
   - objectives and public goods provided by current system

2. What is the current cost per unit of providing a resource?
   - a 'reference' price

3. Impacts of current patterns of use? (‘externalities’/‘collateral’)
   - wider economic and social impact estimate (e.g. volumes, people effected, import dependency, financial costs)

4. What are the costs to the government of supporting the current system?
   - government subsidy/support and comparison with foregone opportunity for other public goods

5. How will the costs in 2. and 3. develop in future?
   - future government costs / foregone spending opportunity

6. At what point will these trends/costs undermine the ability to meet objectives (in 1.)?
   - vulnerabilities and risks to the economy and society

7. When will crunch points occur? Scenarios
   - timeline for change

Assessing the current resource pricing system
**Cost versus price in Bahrain**

![Cost versus price in Bahrain chart](image)

- **Govt. absorbs 80% of cost**
- **Cost of gas: $2.25 mmBtu**
- **Water lost in distribution = 30%**

US$9.2 billion subsidy?

Municipal water consumption, (million m³)

Cumulative financial and treatment and reuse costs

2015

2016

Mounting costs over time

15.9 billion m³ natural gas

78 million tonnes CO₂

+++ Damage to sea ecology

Based on Zubari 2014

Chatham House | The Royal Institute of International Affairs
Estimating support: Who gets what?

Questions:
What is the domestic ‘diesel content’ of basic foodstuffs? Could the ‘subsidy’ be applied directly to help enable families to meet food bills?

Example of Saudi government support to diesel for heavy goods vehicles using Northern Emirates price as a reference price (SR billion)

Diesel and water in Saudi Arabia

Groundwater = free?
Diesel = 6 to 8 cents a litre.
Desalinated water (industry) = US$0.50 – 1.5/ M3. 1000+ lt water to each litre milk.
Milk = 56p/lt (US$0.93).

Al-Badiah Dairy Farm, Irish Farmer’s Journal, online YouTube.
Moving towards a common price for diesel?

Diesel price comparison

What will this mean for food?

“In 2006, fuel prices rose by 186% over the year with a knock on effect on food prices - up 30% and transport – up 130%. Several measures have since brought the inflation rate down, including lowering the fuel prices in 2008 and 2009 and in mid-2013 it stood at around 4%.”

Kamal Field Basri, Iraq
Getting the price right for gas

To reach the ‘efficient’ price for gas, a producer government will need to assess:

- the current costs of producing the gas (including evaluations for energy and water inputs) and transporting it to its users domestically
- the capital investment requirements to bring on additional supply to reach the ‘long run marginal cost’ per unit (often assumed as the current most expensive to produce cubic metre) and, if applicable:
  - the export price for domestically produced gas and how much could practically be exported – often called “opportunity cost”.
  - where sufficient regulation for environmental and public health impacts of production is lacking, the amounts and costs of these e.g. water pollution, NOx, SOx and fugitive methane emissions.
  - A ‘depletion premium’ to reflect using an exhaustible resource is theoretically sensible but given the challenges of such a calculation, the end goal of sustainability may be better met through adjustments to price to incentivize conservation.
- The next stage is to adjust the cost that is passed onto the consumer to account for other government objectives e.g. equity of energy access, competitiveness of domestic industry and environmental sustainability. This could be in the form of targeted subsidy and taxation.
- Thus gas pricing is complex but getting it right is important.
- An alternative to government price setting would be to ‘allow the market to set the price’ by allocation of supply volumes and creation of a gas trading platform.
What would be competitive today with different prices?

![Graph showing conversion of gas turbines into combined cycle, Photovoltaic, Combined cycle, and Nuclear capacities over varying value attributed to Arabian Light crude saved (USD per barrel).]

KAPSARC study, 2014

Figure 5.1: Capacity built in the power sector under the Price-deregulation scenario, without the gas condensate price discount.

It’s not only about the economic logic

“...in reality the problem is that citizens believe that this is now part of their share, part of their payment...For the past 3 years, the ministry has stopped sending electricity bills to houses, and so people don't even know how much they consume.”

- Entitlement
- Household income – what share?
- Awareness
Is it about affordability or perceptions?

Estimates of the price of a tank of petrol as a % of monthly salary after tax

Source: Author estimates based on World Bank Development Indicators & Hertog (2013) & various media sources

Tariff design can separate out costs more fairly

Monthly residential water bill for household of 6 people, 54.75m3/month (300litres/person/day)

Source: Author estimates based on World Bank Development Indicators & Hertog (2013) & various media sources
Politics of change

"Reforming resource price incentives is about purpose, people and persistence"

Adapted from John Kotter 1995/ Graeme Simms 2012
Questions and research to underpin reforms

- **Mapping the distributional benefits of subsidies and reforms** – to what extent does each group/sector benefit from the current price structure? Where are the cost centres? To what extent are subsidies progressive or regressive in assisting the poorest? This evidence could be used to build constituencies for change.

- **What impact will price rises have on other essential goods and services?**
  e.g. the impact of diesel price on food and gas price on electricity generation and water supply, particularly desalinated water.

- **How high do prices need to be to affect the behaviour of different consumer groups?** What will the impacts of various price changes be on demand elasticities of different sectors and income groups? (country specific analysis and options for carrying out these studies)

- **How can price reforms be understood in the context of fiscal sustainability**, break even prices and public spending trends, diminishing role of OPEC, implications of potential moves to price carbon and increasing availability of non-conventional energy sources?

- **What is the scope for regional cooperation and support on politically acceptable and sustainable price reform?** Price differentiation across borders can undermine price reform policies in one country (e.g. through fuel smuggling or leakage)