RENEWABLE FUEL SAVING SPECIFICATIONS
INNOVATIVE MECHANISM FOR EMISSION REDUCTION

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All energy requirements of human beings can be broadly fulfilled through electricity (power) and use of fossil fuels. Even though fossil fuels meet more than 55% of our energy requirement, the majority of the RE (renewable energy) development efforts are directed towards power production. All the governments give high priority to electricity generation through RE sources, rather than to using them for meeting fuel requirements. Even common people have developed a great attraction towards renewable power, rather than fossil fuels. In fact, RE offers great solutions for meeting the fuel needs of people, especially for decentralized applications like cooking.

However, most of the RE technologies, except wind, have not yet matured enough to generate electricity at rates that can compete with fossil fuel-based power. An effort is required to evolve policies in such a way that RE applications are developed to reduce power consumptions and to replace fossil fuels. Both these approaches can reduce emission to a large extent. These approaches can be financially viable and socially acceptable. An integrated approach is required towards RE and conventional energy sources, where the conventional energy sources are taxed more and RE sources are discounted. RFSS (Renewable Fuel Saving Specifications), which is one of the most innovative policy measures according to the authors, needs serious attention from the policy-makers. There is also a need to include it in the Energy Conservation Act.

RPS

RPS (Renewable Power Specifications) has been introduced by many state electricity commissions. It has set the responsibility of generating a fixed percentage of power through RE sources. This responsibility is decided on by the power producing and distributing companies. The share of renewable power is increasing every year, as shown in the next table in reference to Maharashtra. There are some penal provisions as well, as specified in the last column.

Financial year	RPS*	Penal rate for shortfall (in Rs./kwh)
2006/07	3%	NIL
2007/08	4%	5
2008/09	5%	6
2009/10	6%	7

*The percentage RPS denotes Minimum Quantum of procurement of electricity by eligible persons from RE sources in Maharashtra.

Such measures can bring in time-bound promotion of renewable power and corresponding increase in the share of renewable power in the energy mix of the state. The credit from RPS is a tradable commodity. And this mechanism can bring in accountability and commitment for promoting renewable power by the same companies that are responsible for producing dirty power using fossil fuels. The companies which pollute should be given the responsibility to clean up or pay for it.

No policies have been framed for substituting fossil fuels with renewable fuels on the same lines as that of RPS. The authors have proposed a unique concept of RFSS.

New proposals for RFSS

In India, the issues of fossil fuels and renewable fuels are dealt by different ministries. Ministry of Coal and Ministry of Petroleum and Natural Gas are the main ministries that are responsible for providing fossil fuels to the users, and hence, are responsible for major carbon emission. However, the responsibility of emission reduction does not lie with them. The Ministry of Petroleum and Natural Gas is primarily responsible for providing LPG (liquefied petroleum gas), kerosene, and similar fuels for domestic use. These fuels are normally subsidized. Competing technologies like solar cookers, biogas, and biomass technologies are dealt by the MNRE (Ministry of New and Renewable Energy). The MNRE has the onus of cleaning up the emissions caused by what comes under the purview of the petroleum and natural gas ministry. The MNRE has no control over this ministry, and there is no way that it can come up with mechanisms to substantially reduce fossil fuel consumption. There is a big contradiction, in principle, that on the one hand, there is a ministry that is allowed to increase the spread of fossil fuels, without any limit on how much petroleum products it can sell in India. On the other hand, there is the MNRE, which is given a daunting task to reduce emissions by all means. It definitely makes more sense that, on the lines of RPS, the onus of reducing fossil fuel consumption or promotion of renewable fuels should be given to the Ministry of Petroleum and Natural Gas and not to the MNRE. On the same lines as that of RPS, a fixed percentage of fuel consumption (or saving) should come from RE sources, and such responsibilities should be fixed on the fossil fuel manufacturing/selling companies.

Initially, 5% of the domestic fuels requirement should be supplemented by RE gadgets like solar cookers and biogas plants, and the contribution should go up to 10% in next three years. Promoting the right kind of technologies will be the responsibility of fuel-selling companies. New specifications for fuel savings, similar to RPS, need to be evolved. The authors propose RFSS. This is a rational idea because it puts the responsibility of emission reduction on the companies that are responsible for it. This is similar to the idea behind the Kyoto Protocol, which has put the onus of cleaning the earth on developed Annex-I countries, which are responsible for triggering off global warming. One proposal of the RFSS is suggested herewith.

Financial year	RFSS*	Penal rate for shortfall per kg of kerosene/LPG
2011/12	5%	NIL
2012/13	6%	Rs 60
2014/15	8%	Rs 70
2015/16	10%	Rs 80

*The percentage RFSS denotes Minimum Quantum of fuel savings/ renewable fuel supplement by eligible companies.

It will be the responsibility of the fuel-selling companies, like Indian Oil Corporation Ltd and Bharat Petroleum, to promote RE technologies, so that the RFSS targets are met. The companies eligible for the RFSS will need to implement large number of projects in solar cooking, biogas, improved wood stoves, and other green technologies to achieve their targets. These can be implemented through following social channels.

- By way of CSR (Corporate Social Responsibility) projects. These can be for the eligible company itself and also, for other corporates.
- By funding fuel saving projects of the MNRE.
- By implementing projects through non-governmental organizations and educational institutes working in the field of RE, such as TERI (The Energy and Resources Institute) and PRINCE (Promoters and Researchers in Non-conventional Energy).
- By implementing projects through social and charitable organizations like the Rotary Clubs.
- By implementing projects through local governing bodies like the Zila Parishads, through women self-help groups, which are the beneficiaries.

The RFSS can also be designed for industrial fuels, on the same lines as that of the domestic fuels. The corrective measures in case of industrial fuels will be to improve process efficiency and reduce specific fuel consumptions. The companies eligible for the RFSS will have to establish/hire energy auditing companies to carryout energy audits for their industrial clients and reduce specific fuel consumptions. These eligible companies will also have the responsibility of investing in research and development for improving process efficiency to achieve requisite specific fuel saving.

Similar to the RPS, the RFSS should also have tradable credits. In this case, many commercial and voluntary organizations working on renewable and fuel-saving projects can generate RFS certificates and thereby, additional funds by selling the certificates to eligible companies. This additional revenue generation will improve the viability of their projects.

In case the RFSS targets are not met, then the penalties realized from these companies should go to a 'Green Fund', and the MNRE or other organizations working in the field of green energy should use this fund to achieve the RFSS targets.

Conclusions

The ministries that deal with fossil fuels, like the Ministry of coal, are responsible for major emission caused by the burning of fossil fuels. However, they have not been assigned any responsibility of emission reduction. The authors' innovative mechanism of RFSS suggests putting the onus of promoting green fuels or reducing consumption of conventional fuels on the polluters. Fossil fuel manufacturing and selling companies like Bharat Petroleum, Indian Oil Corporation Ltd, and Reliance Petroleum Ltd, need to be given the responsibility of cleaning up the emissions. Such innovative measures can bring in measurable and targeted emission savings and more accountability. Inclusion of such RFSS measures in the Energy Conservation Act will give legal teeth to such measures. In the first phase, the mechanism can be implemented for the Ministry of Petroleum and Natural Gas, and further extended to the Ministry of Coal. Renewable Fuel Saving Certificates should be a tradable commodity, similar to the CDM (Clean Development Mechanism), so that all green projects get additional revenue for improving the project viability. Green fuel technologies or fossil fuel-saving technologies like solar cookers, biogas plants, and improved wood stoves are low budget and can be adopted on a large scale and in a decentralized manner.