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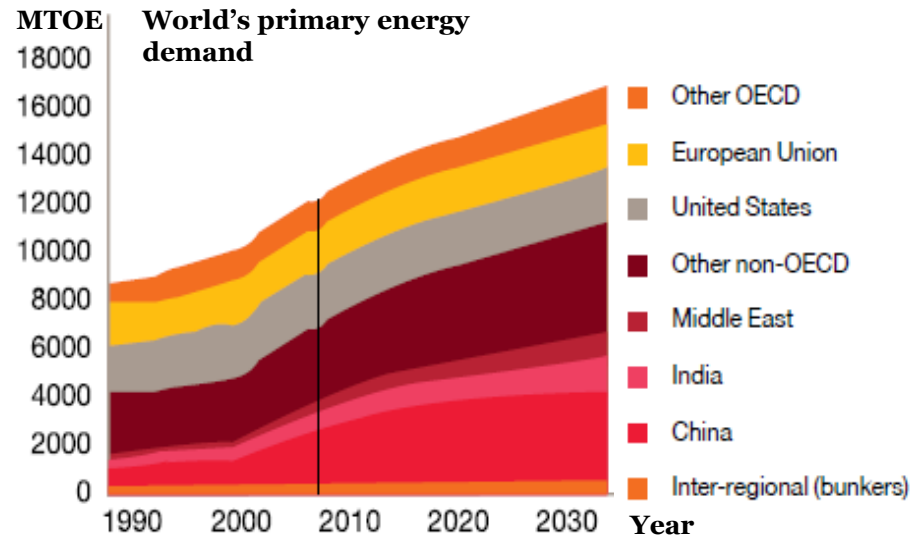
Appliance Energy Efficiency - Financial Mechanisms

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Background

World's energy demand would increase by 1/3 between 2010-30, due to the following factors:

- ✓ Rise in global population by 1.7 billion
- ✓ Annual GDP growth of 3.5% globally



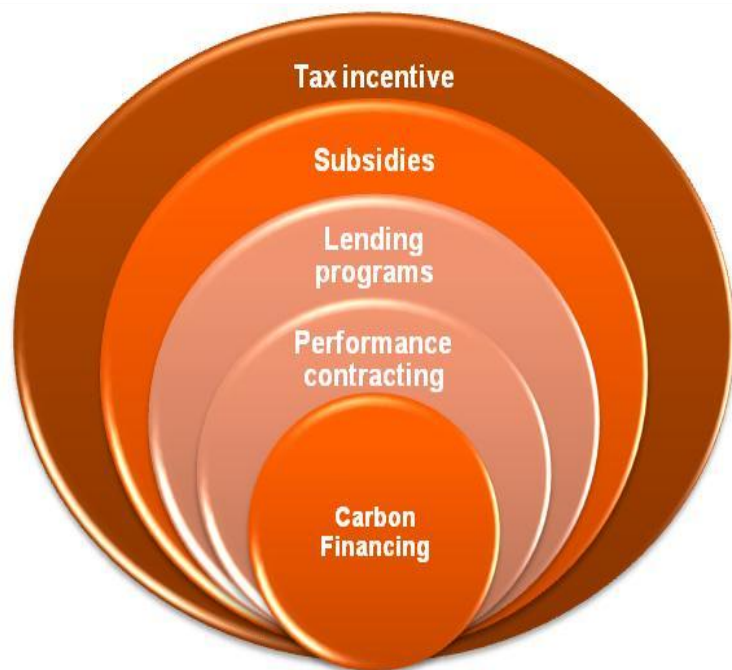
USD 10.5 trillion of new investments in the energy sector is required by 2030, out of which **USD 525 billion** is required for energy efficiency (EE) improvements alone (IEA estimates).

As more than 40% of world's primary energy consumption goes into residential consumption, Appliance Energy Efficiency is the key thrust area where financial initiatives would leverage very high returns.

EE Financing Mechanisms

Definition: Energy Efficiency Financing (EEF) Mechanism is the method through which funding is made available for performing energy efficiency activities.

Types of financing mechanism



Financing Approaches/ Models

Accelerated depreciation, Tax deductions, Tax credits, Tax reductions

Grant, Subsidy etc

Bank window, Low interest lending, Collateral free lending etc

Guaranteed savings, Shared savings etc

CDM funding

Initiatives taken by different countries

Financing Mechanism	Key Barriers	Identified Mitigating Measures	Country Initiatives
Tax incentive	<ul style="list-style-type: none"> • Free riders, • High cost on the government budget 	<ul style="list-style-type: none"> • Establishing a list of eligible technologies and equipments, • Collecting Public money through cess and dissipating the same • Careful drafting of policies and regulations to remove possibility of Gaming 	EE Lending – Japan, Tax Credit – France, VAT reduction- France
Subsidies	<ul style="list-style-type: none"> • Free riders, • High cost on the government budget 	<ul style="list-style-type: none"> • Careful drafting and administration of policies, regulations and programs 	Interest rate buy down through non revolving fund– US
Lending programs	<ul style="list-style-type: none"> • High risk perception • High transaction cost • Collateral • Weak Repayment • Lack of knowledge and confidence in savings 	<ul style="list-style-type: none"> • Risk guarantee funds for EE • Establishing a list of eligible technologies and equipments, • Innovative funds providing collateral free lending • Lien on meter or property & repayment through monthly utility bills • Standard project appraisal manual for knowledge and confidence building 	PRGF, CGTMSE – India FOGIME – France On Bill Financing – US
Performance contracting	<ul style="list-style-type: none"> • Creditworthiness of ESCO's • Lack of standard protocol for M&V • Split incentives 	<ul style="list-style-type: none"> • Setting up of super ESCO • Accrediting ESCO's • Standard M&V protocol • Lien on meter or property & repayment through monthly utility bills 	EESL - India IPMVP– US PACE - US
Carbon Financing	<ul style="list-style-type: none"> • High transaction cost • Availability of funds 	<ul style="list-style-type: none"> • Program of Activities (PoA) • Cross – Financing 	CDM – India Domestic CDM – Japan

S & L financing initiatives

Three types of financing mechanisms are of high significance in successfully running appliance energy efficiency programs, which includes:

Financing mechanisms

Tax incentives

Subsidies

Lending programs

Financing Models

Accelerated depreciation, Tax deductions, Tax credits, Tax reductions

Grant, Subsidy etc

Bank window, Low interest lending, Collateral free lending etc

Various programs promoting S&L are designed on these models, these programs have different drivers in different countries.

Key drivers of S & L

Utility Driven Scheme

Promotes end-user to use energy efficient appliances.

Upfront capital subsidy or Rebate on bill is given to the end users using energy efficient products.

Government Driven Program

Tax Credit or Tax rebate on purchasing EE products

Lower interest rate loan

Reduced VAT on EE appliances

Market Driven

Promoting MEPS of energy using appliances

Promoting EE labeling for appliances & equipment.

Car Labeling / Promotes lower CO2 emitting vehicles.

Few Examples:

Name of Scheme	Countries	Drivers
<i>“Energy Savings Certificate”, “energy star loan”</i>	Italy, France, Denmark , Britain , Connecticut , Pennsylvania, Nevada etc	Utility Driven
<i>“Tax credit, Reduced VAT and Lower rate lending program”</i>	Japan, France, Germany, Korea, China, USA etc	Government Driven
<i>“Car labeling programs”</i>	Europe, USA etc	Market Driven

Austin Home Performance with ENERGY STAR Loan, USA

- Utility – Austin Energy, service area: the city of Austin, Texas and parts of Williamson and Travis Counties, Texas
- Source of loan capital: Loans financed via Austin Energy partner Velocity Credit Union (VCU). Austin Energy (AE) buys down the interest rate on these loans to between zero and 6 percent, depending on the improvements made, the loan term, and the customer's credit profile.
- Source of fund: Austin Energy buys down the interest rate on VCU loans with money from AE's operating budget and the American Reinvestment and Recovery Act (ARRA).
- Approximately 1800 projects sanctioned with \$12.5 million in loans disbursed during 2006- 2011

Michigan Saves Home Energy Loan Program, USA

- Source of loan capital: Loans financed via various local credit union partners.
- Source of loan loss reserve (LLR) funds: Michigan Public Service Commission's "*Low-Income and Energy Efficiency Fund*" provided an initial grant; LLR is supplemented by further grants, including ARRA funds.
- Michigan Saves is a non-profit organization which administers the program itself.
- Loans are unsecured and range from \$1,000 - \$12,500.
- Loan interest rate ceiling fixed at 7%. Loan loss reserve set at 5% of total loan portfolio (upto 80% individual loan). State pays 80% of first losses; credit unions responsible for remaining 20%.
- Around \$450,000 disbursed in 2010. LLR fund size \$3 million to support up to \$60 million in loans; amount of loss reserve disbursed to date is unknown.

Eligible improvements include:

- ENERGY STAR qualified doors, roof materials, skylights, windows, and appliances.
- HVAC installations with qualifying parameters like EER, COP values.
- Qualifying water heaters etc.

Sustainable development Tax credit (SDTC) for EE equipment purchase, France

- Offer to taxpayer, the ability to recover a part of the investment in the form of an amount deductible from the income tax in accordance to the type of energy efficient equipment bought.
- Tax credit range of 13%, 22%, 36% and 45% in 2011, applies to a wide range of energy efficient equipments.

Year	2004	2005	2006	2007	2008	2009
Number of works (x1000)*	865	1 038	1 333	1 405	1 648	NA
Total cost of works (M€) *	3 121	3 705	5 564	6 145	8 195	NA
Total cost of Tax Credit (M€)	397 **	990 **	1 900 ***	2 100 ****	2 800 ****	2 600 ****

* Source www.impots.gouv.fr, ** Source DLF, *** Source DLF estimation 2007, **** Source DLF estimation 2010

Bonus / Malus scheme, France

To reward through a bonus (subsidy), buyers of new cars that emit the least CO₂ and penalize via a fee, those who opt for the most polluting models.

The new tax system will be neutral for about 45 % of new car purchases, for vehicles emissions between 130 to 160 g/km

Penalty	Bonus
200 € levy on new cars with CO ₂ emissions from 161 to 165 g/km	200 € bonus for new cars with CO ₂ emissions from 121 to 130 g/km
750 € levy on new cars with CO ₂ emissions from 166 to 200 g/km	700 € bonus for new cars – from 101 to 120 g/km
1 600 € levy – from 201 to 250 g/km	1 000 € bonus for new cars below 100 g/km
2 600 € levy – from 201 to 250 g/km	5 000 € bonus for new cars, principally alternative fuel vehicles, below 60 g/km

In addition, a bonus of 1 000 € is given to all new car purchases for replacing scrapped vehicles older than 10 years.

Eco-Points Scheme , Japan

- **Green Home Appliances:** Consumers obtain "eco-points" by purchasing "green" home appliances for products to be designated as "exchangeable"
- Product should have 4-star or above efficiency rating
- The points granted could be exchanged for gift certificates, prepaid cards, regional specialties, and energy-efficient/ environment-friendly products; they could also be donated to any of 181 environmental organizations selected from public entries.
- May-December 2009, approximately 85.93 billion points issued for individual consumers and 79.27 billion points had been used to order gifts or make donations

Appliance Tax Credit for Manufacturers, USA

- The federal government run program giving tax credit to manufacturers of energy-efficient home appliances (clothes washers, refrigerators, and dishwashers).
- Source is American Recovery and Reinvestment Act (ARRA) through Energy Manufacturing Tax Credit (MTC)
- The credits are available for models produced in 2008, 2009 and 2010.



Clothes Washers

- Incentives ranges from \$150 to \$225 depending on the products specific energy consumption



Refrigerators

- Incentives ranges from \$100 to \$ 200 depending upon the products energy consumption level



Dishwashers

- Incentives of \$ 25 to \$ 75 depending upon the products specific energy consumption

Energy Efficient New Homes Tax Credit for Home Builders, USA

- Home builders eligible for a \$2,000 tax credit for a new energy efficient home that achieves 50% energy savings for heating and cooling over the 2004 International Energy Conservation Code (IECC) and supplements.
- US\$1,000 tax credit to new home achieving 30% energy savings for heating and cooling over the 2004 IECC and supplements (at least 1/3 of the savings had to come from building envelope improvements) or a manufactured home meeting the ENERGY STAR requirements.

US and Europe assign a dedicated budget for R & D activities in S & L area:

DOE sponsored R & D program, USA

Number of programs in building sector through the Energy Policy Act of 2005, the Energy Independence and Security Act of 2007, and ARRA 2009.

Total budget of \$140 million (FY09, not including ARRA funding) focus on energy efficiency gains in:

- Building envelope
- Building equipment
- Analysis and design tools
- Solid state lighting etc

Super-Efficient Equipment and Appliance Deployment (SEAD), USA

This program was launched in Washington in July 2010. Its objective is to promote & raise efficiency ceiling by super efficient appliance through procurement, R & D, strengthening the foundation of efficiency programs etc

Conclusion

In India, following policy initiatives could further catalyse the existing growth rate of Standard and Labeling in appliances:

1. Tax Credit for Highly Efficient Appliances
2. Allocation of dedicated funds for R&D, Capacity building, credit guarantee or interest rate buy down
3. Phasing out inefficient appliances by giving some subsidy for scrapping old appliances
4. Promoting and Motivating Financial Institutions towards energy efficient equipment lending to all types of consumers

Thank You

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