



RAP[®]

Energy solutions
for a changing world

Activating the Demand Side:
Efficiency and Demand Response

From Integrated Resource Planning to Efficiency First

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The Regulatory Assistance Project (RAP)[®]

Energy Efficiency

Let's move from WHY to HOW:

Planning an efficient power system, need to consider right:

- short (dispatch) to long-term (investments),
- costs and benefits of supply and demand resources,
- its location and other system resources e.g. grids.

Integrated planning procedures will consider all this, and address saving targets, external costs and long term aspects (decarbonization), too.

Energy Efficiency

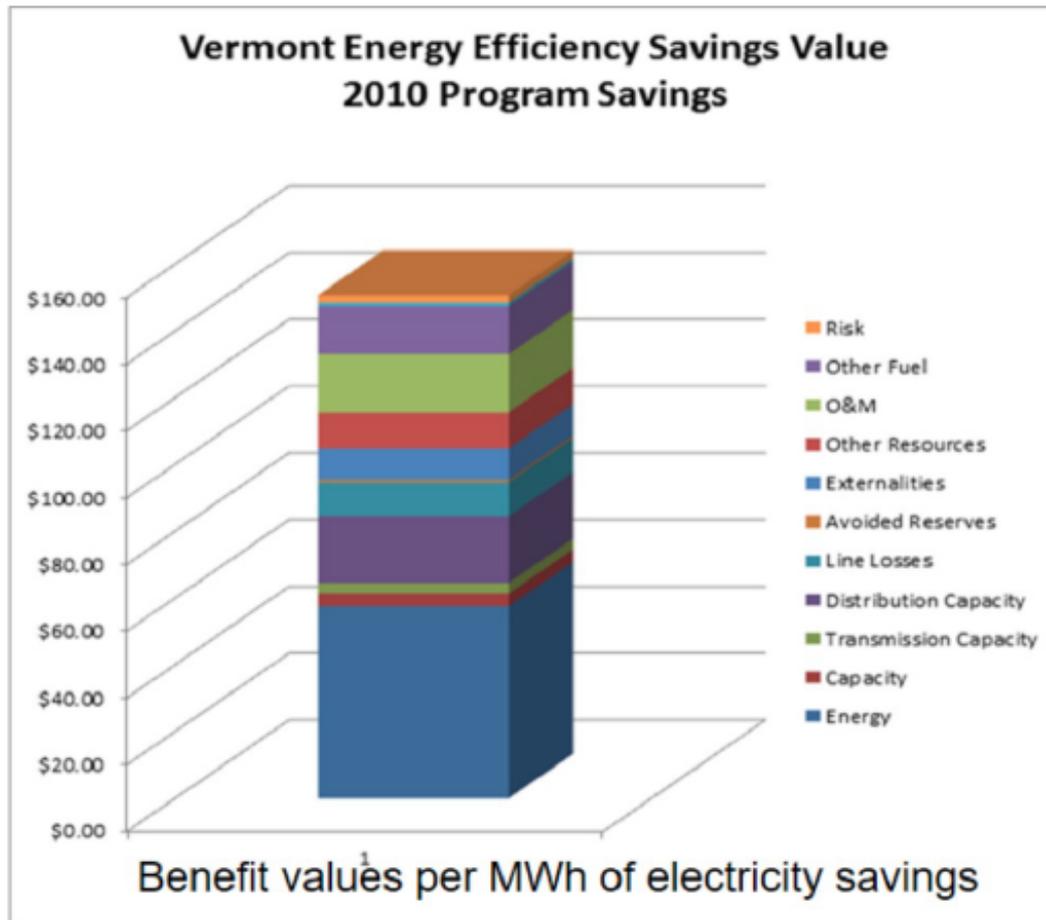
How to address within markets?

Markets (participants) value efficiency in proportion to how it lowers their bill – in energy markets, too.

Further on,

- energy efficiency benefits are multiple
- customer decisions are multiple

Multiple Benefits from Energy Savings



- **Production Energy**
- **Production Capacity**
- **Avoided Emissions**
- **Transmission Capacity**
- **Distribution Capacity**
- **Line Loss Reduction**
- **Avoided Reserves**
- **Lower Risk**
- **PLUS Non-Energy Benefits**
 - Environment, Air, Water
 - Building durability, comfort
 - Health & safety

Customer Decisions \neq Market Prices

Market barriers
Lack of information
Upfront costs
Payback periods - high implicit discount rate
Consumer inertia: Hassle factor, timing mismatches
Split incentives – eg, Builder/buyer Tenant/landlord
Unpriced external costs
Uncompensated benefits –eg, system reliability

Key Lessons, 20+ years Experience:

- **Barriers are same** in both traditional utility systems and liberalised markets (EU & US have both)
- **Single-barrier attempts don't work** (pricing alone, financing alone, etc.)
- **Consumers need** trusted information, quality assurance, and financial help
- **Public investment (from gov't or all consumers) is needed** to remove barriers & leverage sufficient private investment in EE.

„Efficiency First“ is needed

Efficiency First is a principle applied to policymaking, planning and investment in the energy sector.

It prioritizes investments in efficiency resources whenever they would cost less, or deliver more value, than investing in energy infrastructure, fuels, and supply.

Efficiency First

1. Planning

⇒ Targets on emission, resources, RES

2. Targeted EE policies and programmes

⇒ Obligations and standards, carbon taxes and revenue recycling, specific taxes e.g. property transfer tax, feed-in-tariffs, etc.

3. Infrastructure decision rules

⇒ Based on system benefits from saving

4. Compliance and review

⇒ Independent monitoring and ongoing adjustment

Required Funding Aspects

Stable funding - beside annual appropriation - can be achieved through

- Energy costs
- Distribution tariffs
- Surcharges
- Carbon revenue recycling
- Tax credits
- Capacity markets

Lesson Learned

Key Components of Regulatory and Legislative Reforms for an Efficient Energy System

Decision-making Based on System Benefits of Efficiency

Address the Efficiency Investment Deficit (Sources of Funding)

Ongoing Collaboration of Institutions

PLUS

Implement Efficiency First Principles *within* Existing Laws and Regulations (Including Removal of Disincentives to Demand-Side Resources)

Grid Extension

- EnWG
- EnLAG
- StromNEV

Self-Production

- EEG
- EnWG
- KWKG
- StromNEV

Revenue Decoupling

- MietR
- KAV
- EnEG

Transport

About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power sector. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

Learn more about RAP at www.raponline.org

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