



**IREEE: INNOVATION, RENEWABLE ENERGY AND ENERGY EFFICIENCY
INTERNATIONAL EXPO AND CONFERENCE**

BEST PRACTICES OF DSM AND OPPORTUNITIES TO IMPLEMENT IN MONGOLIA

SESSION III, MAY 17 2024



Econoler in Brief

- › A Canadian consulting firm dedicated to fostering climate change mitigation through energy efficiency and sustainable energy solutions.
- › Formed as an ESCO in 1981, grew into a consultancy in the early 1990s with a focus on energy efficiency activities.
- › 40+ years of experience in Canada and abroad, with over 5,000 projects completed in 165 countries.
- › 100 professional staff located in Canada, the USA, Europe, Africa, Latin America, and Eastern Europe.
- › Multicultural, multilingual, and skilled staff: economists, engineers, financial specialists, policy experts, gender/social inclusion experts.

Econoler Areas of Expertise



Climate Finance, Green Finance,
National Climate Strategy

Program Development,
Implementation, Evaluation and
Planning

Energy Efficiency, Renewable
Energy & Decarbonization

Energy Services Companies
(ESCO), Energy Performance
Contracting

Social and Gender Inclusion in
Energy and Environment

Econoler Clients



Multilateral Development Banks (MDBs)

- World Bank
- IADB
- EBRD
- EIB
- ADB
- AfDB
- CDB
- CABI

Bilateral Development Banks and Agencies

- AFD (France)
- GIZ (Germany)
- KfW (Germany)
- Global Affairs Canada (GAC)
- USAID (US)
- MCC (US)
- SECO (Switzerland)

Other International Agencies, Funds, and Foundations

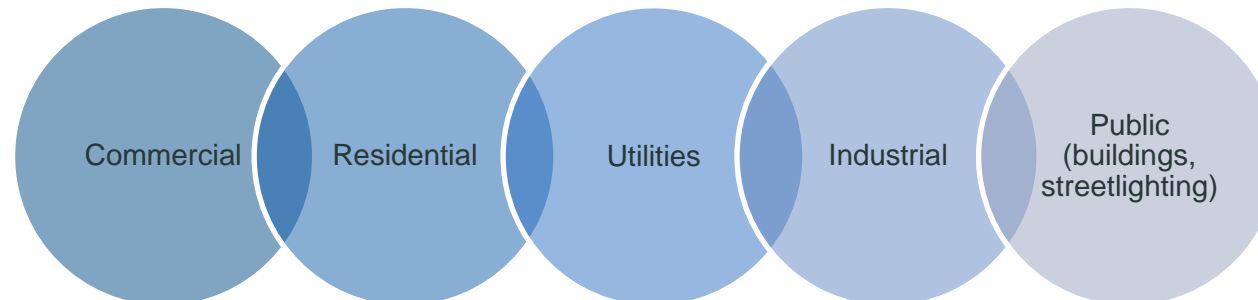
- IEA
- REEEP
- Fundacion Bariloche
- GCPF
- Klik Foundation
- Climate Works Foundation
- GCF
- IKEA Foundation

United Nations Agencies

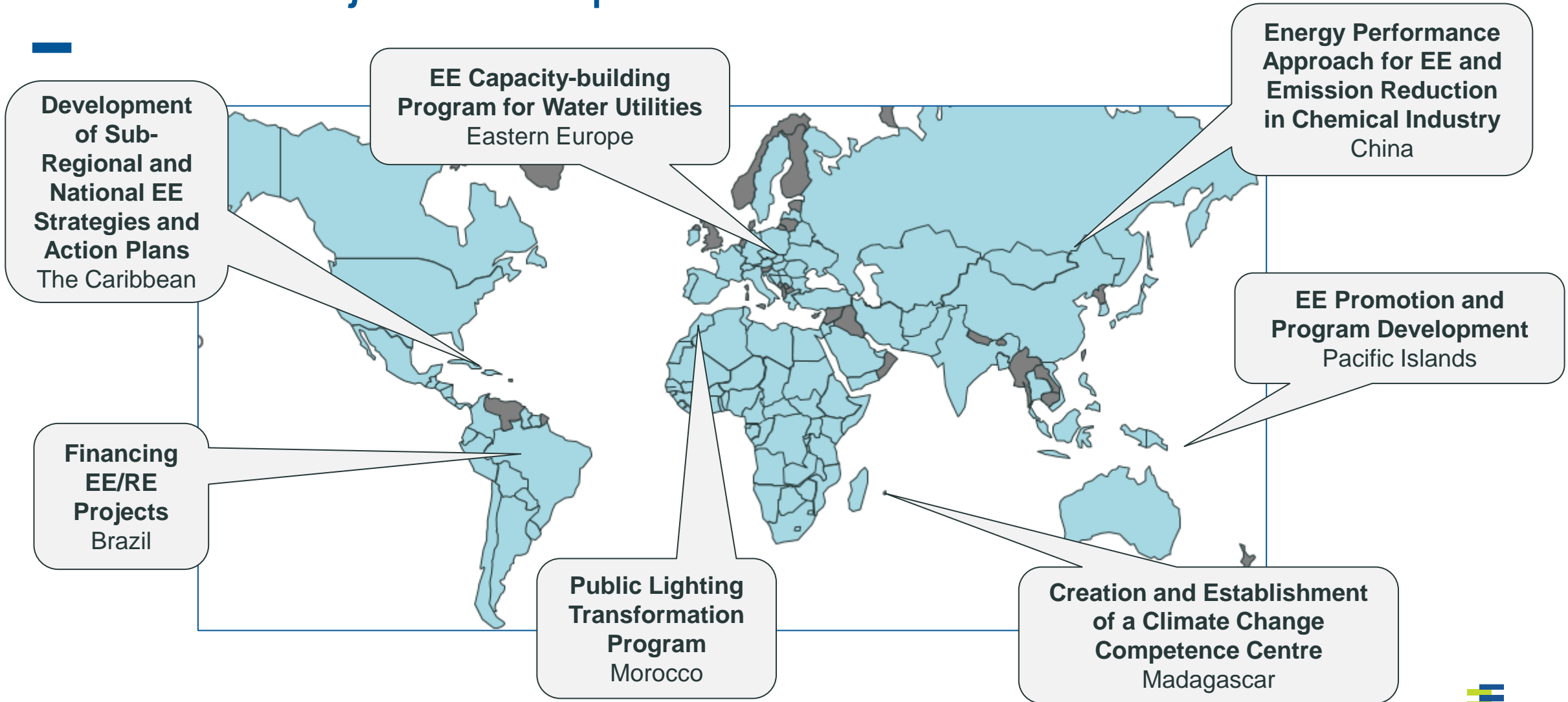
- UNDP
- UNIDO
- UN Environment
- UN Habitat
- UNESCO

Government, Agencies, Utilities, Private Sector Regional Organizations (sample clients)

- Ministry of Energy & Nat. Resources (Türkiye)
- CARILEC (Caribbean utilities association)
- ABB (corporate)
- UTE (Uruguay Power Utility)



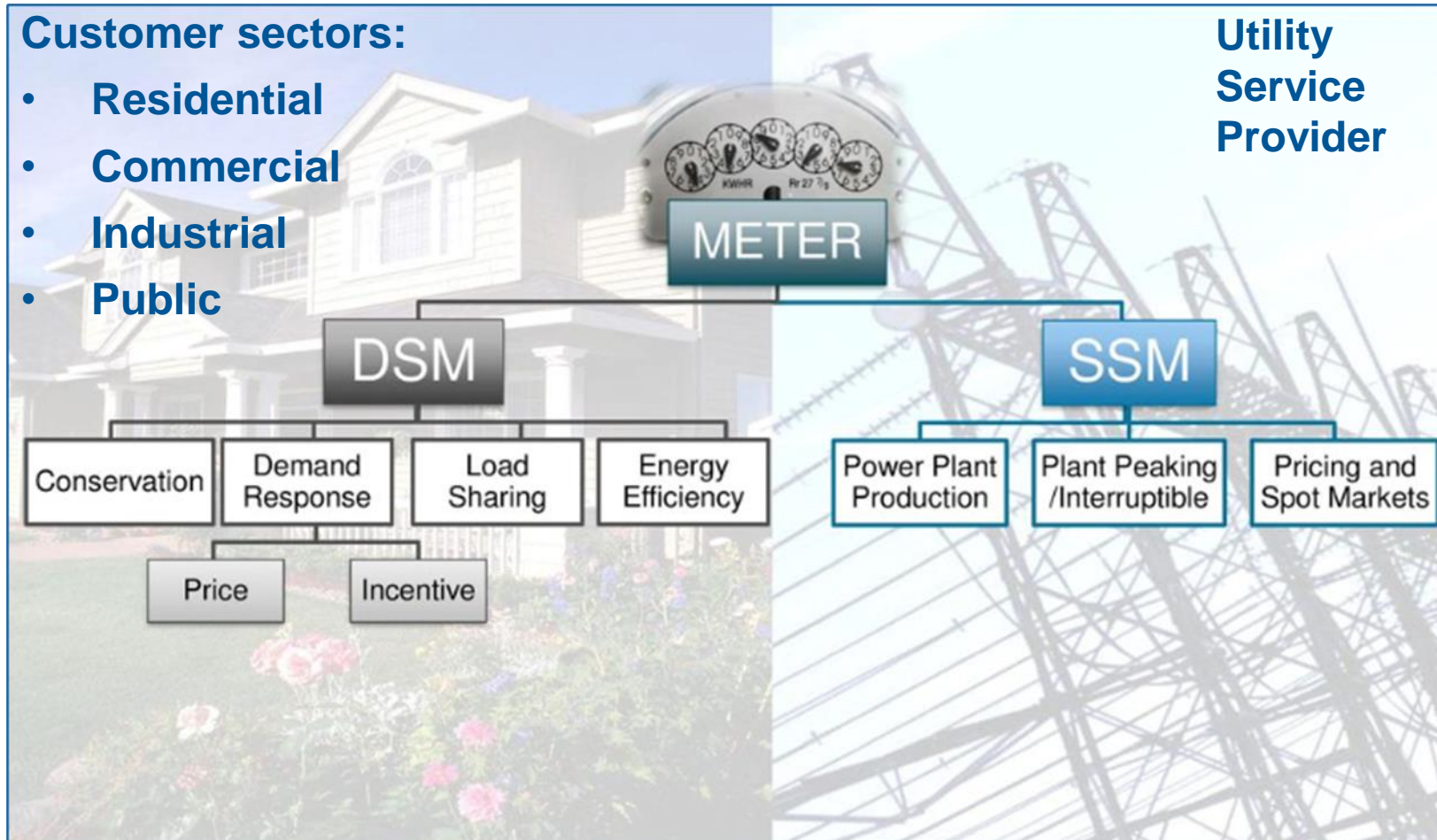
Econoler Project Examples



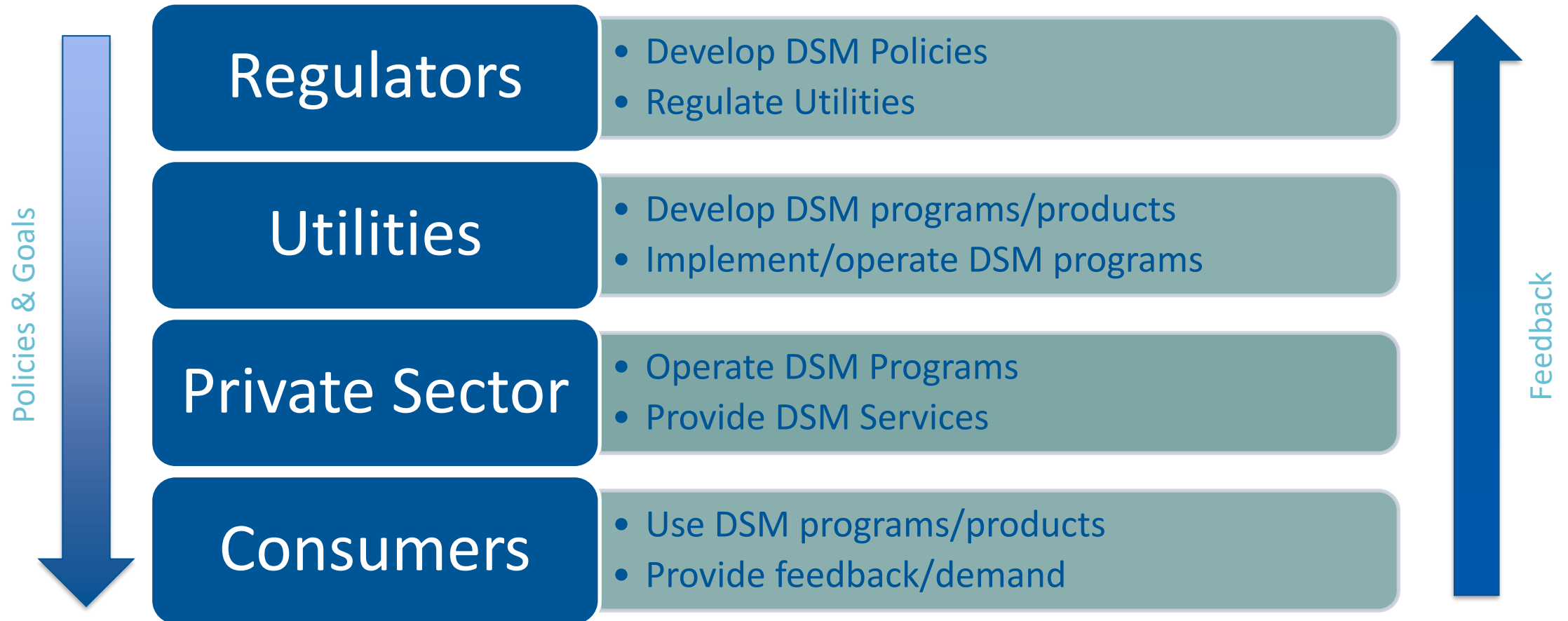
Demand-Side Management: Overview



✓ Demand Side



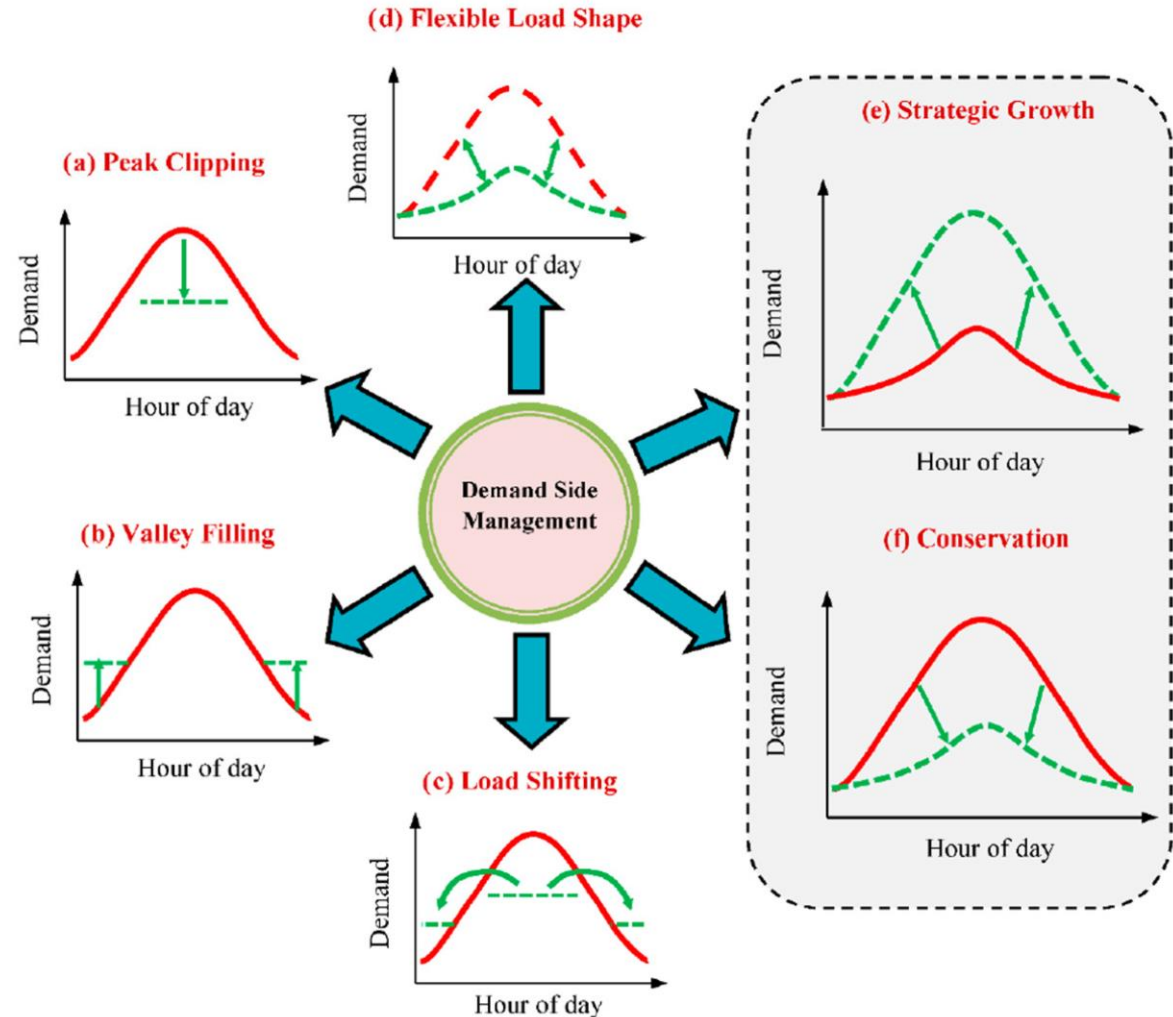
Demand-Side Management: Institutional Framework and Stakeholders



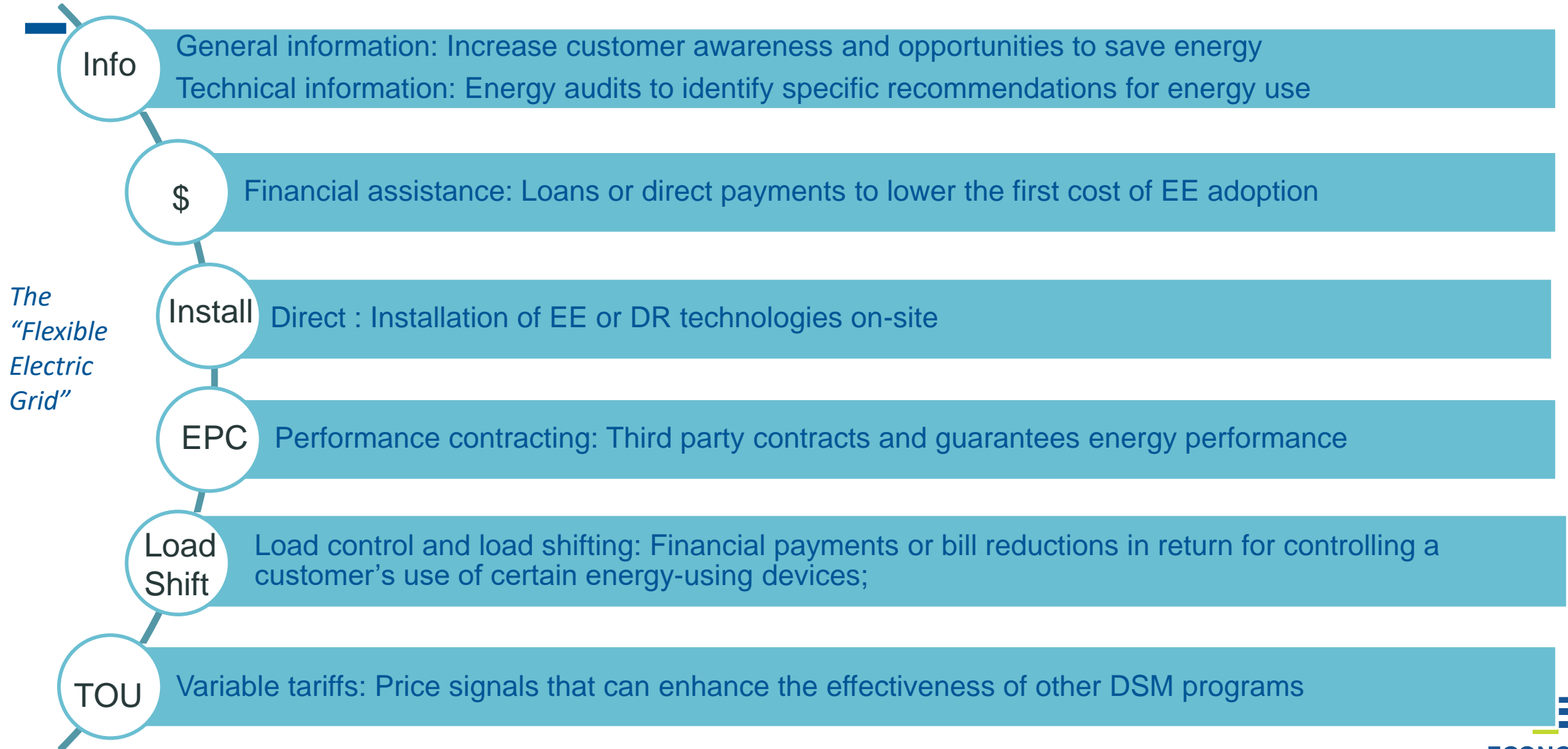
Demand-Side Management: Objectives

- Demand-Side Management is generally defined as the planning and implementation of those activities designed to influence the use of electricity in ways that will result in changes in the utility's load shape, including changes in the time pattern and magnitude of a utility's load.

Image source: mdpi.com



Demand-Side Management: Types of Programs



Demand Side Management: Implementation Process



Objective and Coverage of EE activities: It is necessary to establish the area of products and services for DSM activities.

Program Type and Justification: Three types of programs are needed: Peak loads, Labeling/MEPS, and an awareness campaign to support DSM/EE

Determine Potential for “Smart Grid” Integration: Implementation of DSM measure needs to be considered against its potential impacts as well as future grid and energy developments.

Identify Program Stakeholders and Secure Support: Having the support from key stakeholders can increase program visibility, credibility, and identify solutions that are not appropriate for Mongolia.

Program Logic Model: Each program identified will require the development of a detailed logic model with participation, support, and input by local key stakeholders to improve their chance of success.

Program Implementation Timeline: Each program will require their own timeline for development and implementation, as well as coordination.

Demand-Side Management: Success Story

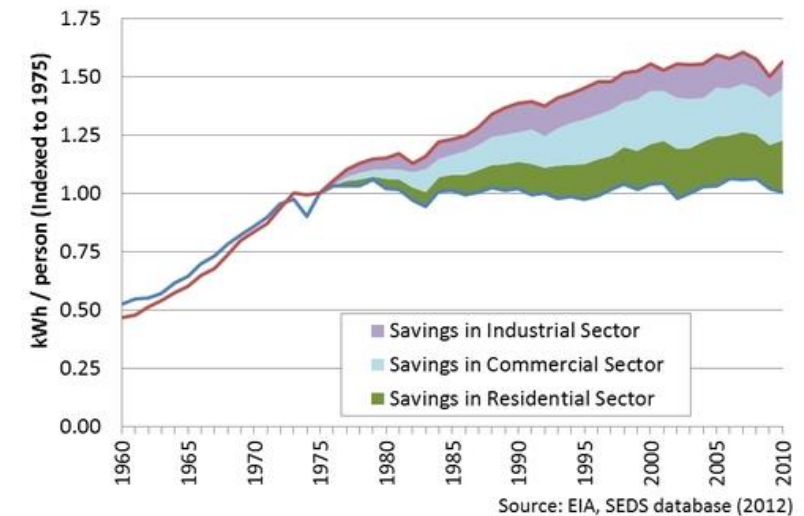
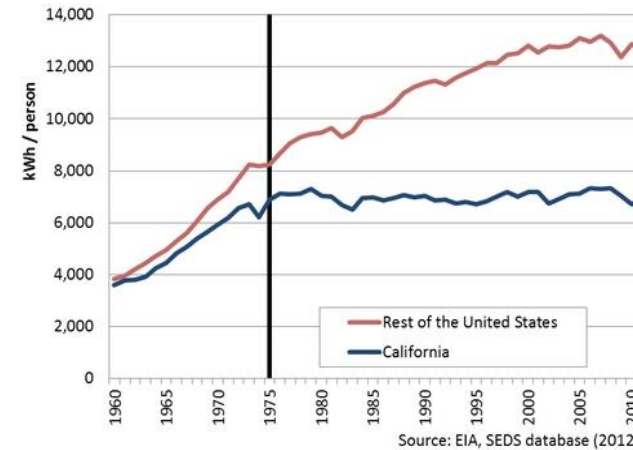


California, USA

California leads the US utility industry in conservation and efficiency measures and has been implementing DSM programs for about 40 years.

Key Results of California's DSM Programs:

- U.S. per capita energy demand has increased by 50% over the past 40 years, California's growth rate has remained flat.
- California's DSM and EE programs are used as examples by other US states and many other nations across the globe.
- California's first-ever energy conservation standards for appliances and buildings have been replicated by the U.S. Federal government and other states and countries.



Demand-Side Management: Opportunities for Mongolia

DSM Measure	Description	Likely Impacts
Energy Auditing (Industrial Sector)	Energy audit of energy intensive industrial facilities to identify EE and DSM/DR opportunities	<ul style="list-style-type: none"> • EE: overall demand only (mid-term) • DSM/DR: Peak demand/load shift (near-term)
Energy Auditing (Commercial and/or Residential Sectors)	Energy audit of commercial and/or residential buildings to identify EE and DSM/DR opportunities	<ul style="list-style-type: none"> • EE: overall demand only (mid-term) • DSM/DR: Peak demand/load shift (near-term with high participation)
Building practices and building codes (Commercial and Residential Sectors)	Encourage buildings to adopt LEED guidelines and/or encourage buildings to meet or exceed IBC for energy efficiency	<ul style="list-style-type: none"> • EE: overall demand only (mid-term) • DSM/DR: Peak demand/load shift (near to mid-term with high participation)
Energy efficient building components and equipment (Commercial and Residential Sectors)	Encourage the construction sectors to use EE components and equipment in commercial and residential buildings	<ul style="list-style-type: none"> • EE: overall demand only (mid-term) • DSM/DR: Peak demand/load shift (near to mid-term with high participation)

Demand-Side Management: Opportunities for Mongolia



DSM Measure	Description	Likely Impacts
EE Cookstoves and Room Heating (Residential Sector)	Promote and encourage the adoption of EE cookstoves and room heaters	<ul style="list-style-type: none"> • EE: overall demand only (mid-term) • DSM/DR: Possible load shift with high participation (near to mid-term)
Smart/Controllable Thermostats (Commercial and Residential Sectors)	Promote and encourage the adoption of smart and/or controllable thermostats and set points/time-of-use	<ul style="list-style-type: none"> • EE: overall demand only (mid-term) • DSM/DR: Possible load shift with high participation (near to mid-term)
Solar Battery Backup Systems (Residential Sector)	Promote and encourage the adoption of solar battery backup systems for and other energy storage/heat pumps for in peri-urban areas	<ul style="list-style-type: none"> • EE: overall demand only (mid-term) • DSM/DR: Possible load shift with high participation (near to mid-term)
Smart/Consumption Metering (Commercial and Residential Sectors)	Promote and encourage the adoption of meters and consumption metering in placed of monthly charges for energy use	<ul style="list-style-type: none"> • EE: overall demand only (mid-term)



Demand-Side Management: Implementation & Considerations



Depending on the EE or DSM measure and the scale of implementation, the magnitude and timing of their impacts in terms of overall and peak load reductions can vary widely;

Some EE or DSM measures also have complementary effects, and their coordinated implementation can also increase their impacts.

As the Government of Mongolia prepares for further development of the electric grid to meet future needs as well as international commitments, it will need to consider:

- › The DSM actions to take (and in which order) that can provide the most immediate impacts with the current situation;
- › Preparing to take advantage of the future developments such as adding “smart grid” features to the system.

Demand-Side Management: Conclusions and Recommendations



The rapid development of Mongolia is challenging the country's electricity generation capacity to keep up with increasing demands. The density of users and demands are also challenging the electricity and heating distribution systems to meet the seasonal peak periods.

- Measures that can improve the energy efficiency (EE) of equipment in the market to help reduce future overall demands, and demand-side management (DSM) activities that can be quickly implemented in the near term to help to address the country's peak and overall energy demand challenges deserve consideration.
- The concepts presented here represent only a small selection of possible DSM and EE measures that can be used to address the energy efficiency and peak load demands for UB as well as other urban areas in Mongolia.



THANK YOU

econoler.com



ECONOLER