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# Delivering Low-Carbon Technology Investments through Demand-Side Management (DSM)

USAID Jordan Energy Sector Capacity Building Activity  
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- Jordan's Energy Crisis and Energy Policy Response
- Mobilizing low-carbon technology investments via DSM
- Jordan's DSM program design
- Outlook for scaling-up





## Jordan's energy sector faces multiple challenges

### Rapidly growing energy demand



- 7% annual growth in primary energy demand
- 5.5% annual growth in electricity demand

### Near total dependency on imported fuels



- 97% of energy needs met through imports
- 17% of GDP annual spending on energy imports

### Large subsidy flows for household electricity consumption



- \$1.3 billion spent last year on electricity subsidies

### Mobilizing the investment to expand energy resources



- New supplies (conventional and renewable)
- Transmission additions



## Jordan's energy policies promote diversifying energy production and reducing consumption through low-carbon technology investments

### Renewable Energy

Jordan's 2007-2020 Energy Strategy will increase the share of renewable power to 10% through 1,000 MW of wind and 800 MW of solar energy by 2020. The Renewable Energy Law facilitates this rapid scaling-up.

### Energy Efficiency

The 2012 National Energy Action Plan calls for a 30% increase in solar water heater uptake and 20% improvement in energy efficiency by 2020. The Jordan Renewable Energy and Energy Efficiency Fund will mobilize the investment to meet these goals

### DSM

The regulator has approved a framework allowing electricity distributors to deliver renewable energy and energy efficiency to their customers, co-funded by end-users and supported by government funds



## Demand-Side Management (DSM) mobilizes energy utilities to support investment in low-carbon technologies

### DSM measures can include:

- Advice and assistance
- Promoting energy saving behavior
- Incentives to invest in low-carbon technology
- On-bill financing
- Bulk procurement and distribution

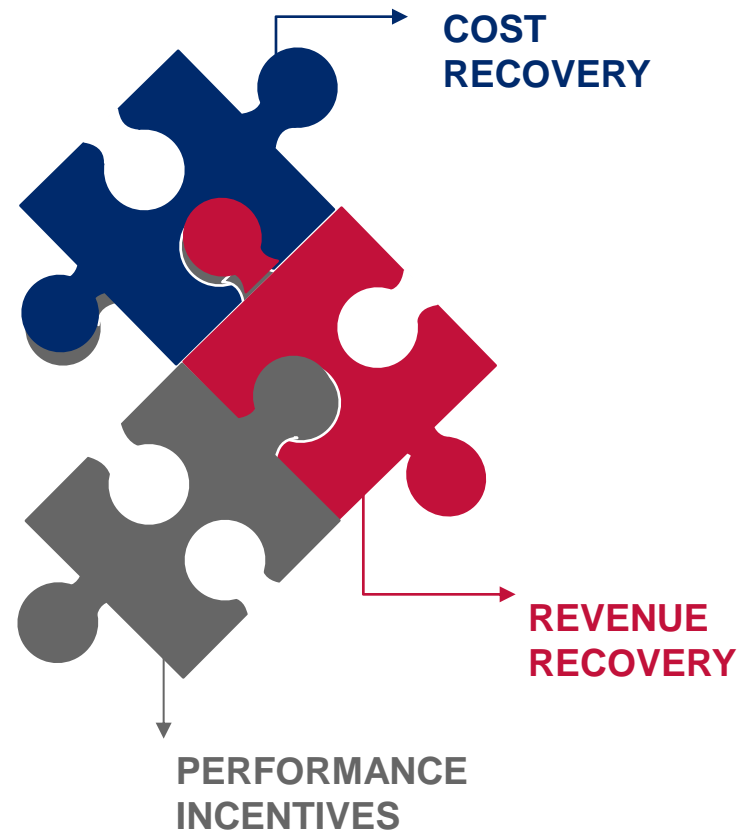
### Who benefits from DSM?

- Electricity consumers, through lower energy bills
- Utilities and governments, through reduced investment requirements and subsidy flows
- Local communities and businesses, through new business opportunities
- Society, through lower GHG emissions



## DSM has proven effective in the U.S. and globally

- DSM is a fast-growing industry accounting for about 15% of annual energy-savings in the US<sup>1</sup>
- Energy saving investments are funded through utility bills
- Utilities must be able to recover their costs and lost revenues
- Incentive payments encourage utilities to meet their energy-saving targets
- A regulatory and legal framework is required
- Mature DSM programs can deliver up to 3-5% annual savings on a long-term basis

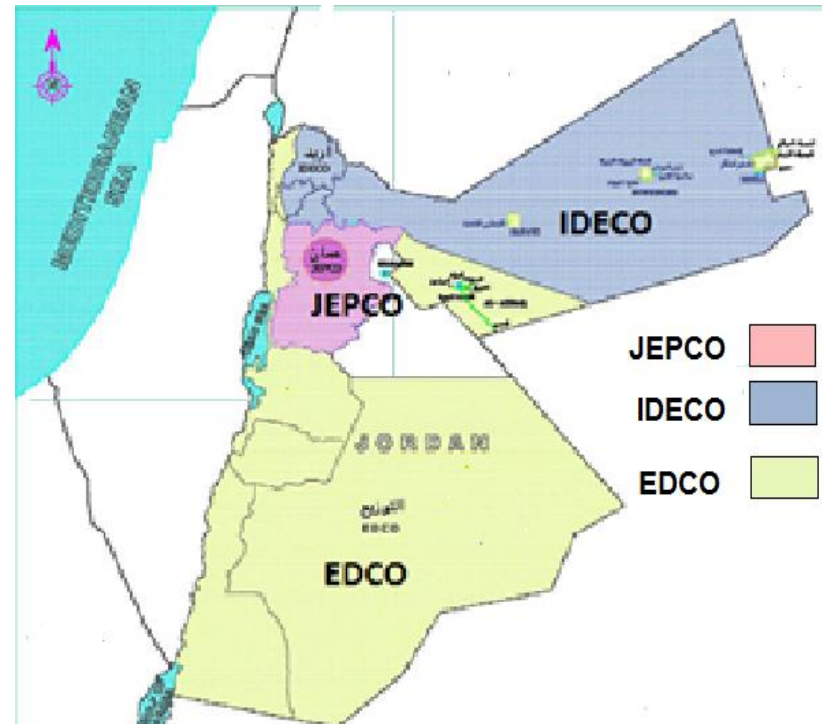


<sup>1</sup>IEA 2014 US In-Depth Policy Review



## Electricity distributors are well positioned to promote low-carbon investments in Jordan

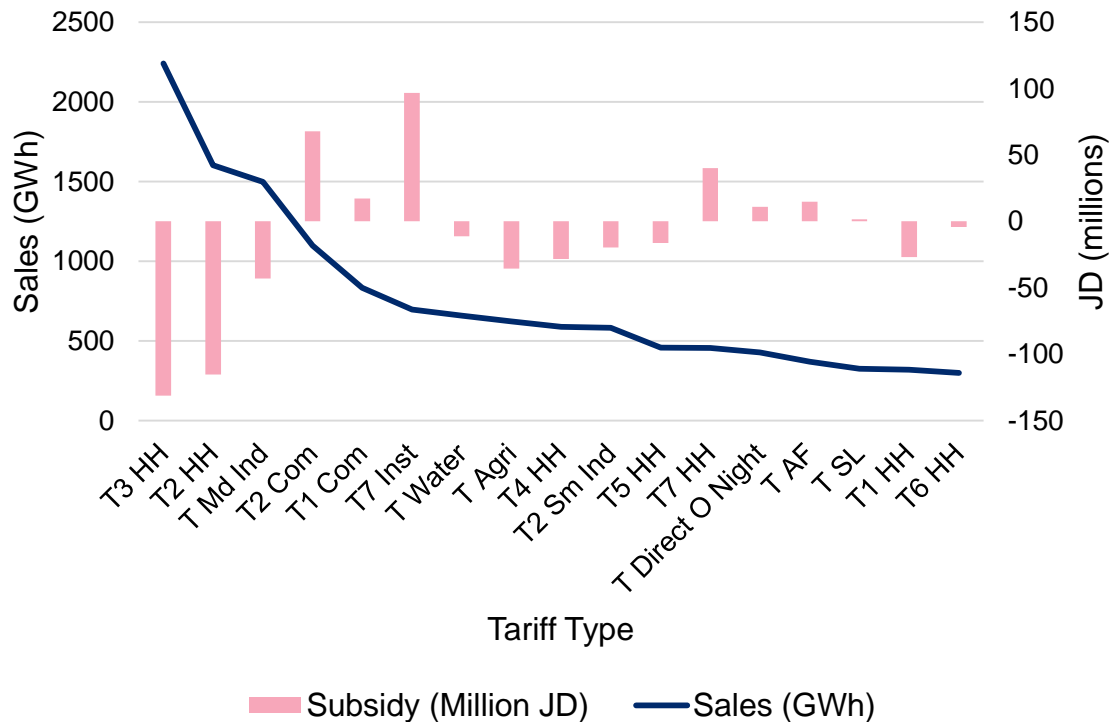
- Strong technical and administrative capacity
- Billing data needed to segment markets and qualify customers
- Access to financing
- Familiarity and branding
- Complete geographic coverage
- Well-placed to overcome the low-awareness and risk-aversion of end-users





## Jordan's DSM program targets households receiving electricity subsidies

### Sales vs. Contribution to Margin for Retail Tariff Classes



### Jordan's challenges in serving the household sector

- 40% of total electricity used
- Fastest-growing sector
  - 75,000 new households annually
  - 7% annual growth
- Main recipient of energy subsidies
  - 400 million JD (2015)





## Overcoming the barriers to DSM in Jordan

### Establishing a regulatory and legal framework

- DSM Recommendations adopted
- DSM Guidance issued by EMRC

### DSM funding

- Through 2017: JREEEF revolving fund
- Post-2017: Tariff revenues



### Tools to design and evaluate DSM programs

- DSM financial analysis model
- National household load survey

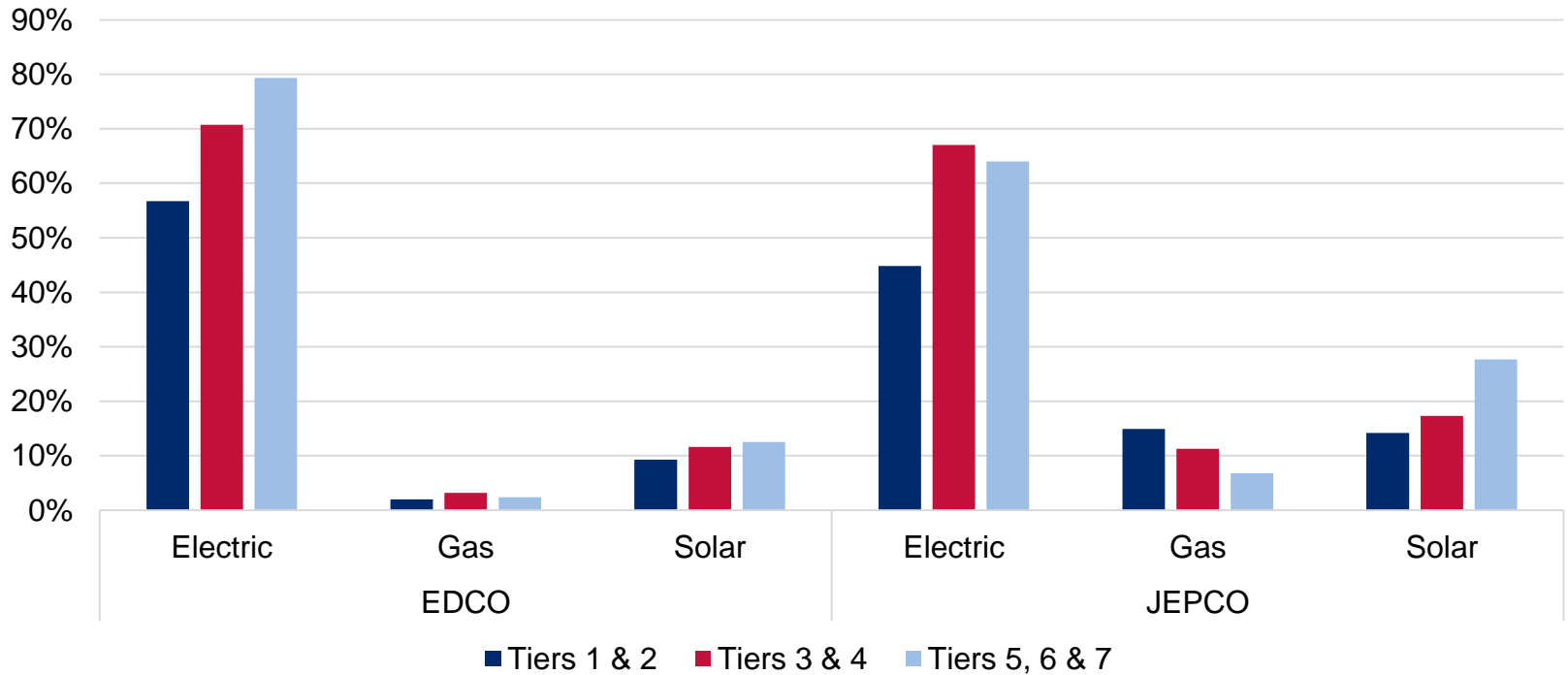
### DSM capacity building

- DSM units at each electric utility
- Regulatory oversight procedures



## Load Surveys help identify DSM market opportunities

Household Water Heater Penetration in Jordan





## Outlook for DSM in Jordan

- 2015 DSM pilot projects:
  - 50,000 LED lamps for households
  - 1000 household SWHs
- 2016 DSM pipeline:
  - Household refrigerator replacement
  - High-efficiency appliance rebates
  - Household PV
- 2017 and beyond:
  - Scale-up successful DSM projects with funding through tariffs
  - Goal: 1% annual household electricity savings and 10% reduction in subsidies



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# Thank you!

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