California ISO
Shaping a Renewed Future

Demand Response: Analyzing the Double-Payment Order

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Double Payment: The Fundamental Flaw

- **DR providers will be paid twice:**
  1. **G** by load (for reduced retail bills)
  2. **LMP** by the ISO (required by Order 745)

- **DR should receive LMP. Now DR receives G.**
  - So the ISO should, in effect, pay DR: **LMP – G**

What if we did?

- Suppose Net-Benefit Threshold = $51/MWh
- Suppose **LMP** = $50, and **G** = $100
- FERC says: Don't pay them.
- But we should pay them **LMP – G = $50 – $100 → $0**
- **Double Payment is The Fundamental Flaw**

What Economics Matters?

- This is not a how-to-design problem.
- This is a prove-it-is-legally-wrong problem.
- We know of too many economic flaws
- Those flaws that
  - support a legal point
  - are bullet proof
  - can be explained with great clarity

are most valuable to the CAISO.

Double-Payment Failures

1. **Behind vs. In-front-of the meter** **[Economics]**
   - Arbitrary and capricious [use ?]
2. **Inefficient: Overpayment hurts consumers**
   - Rates not just and reasonable [?]
3. **"Benefit" is not real → cannot justify overpayment**
   - Preferential and unduly discriminatory [?]
4. **Double Payment will exacerbate phantom DR problem**
   - [?]

1. Where's the Meter?

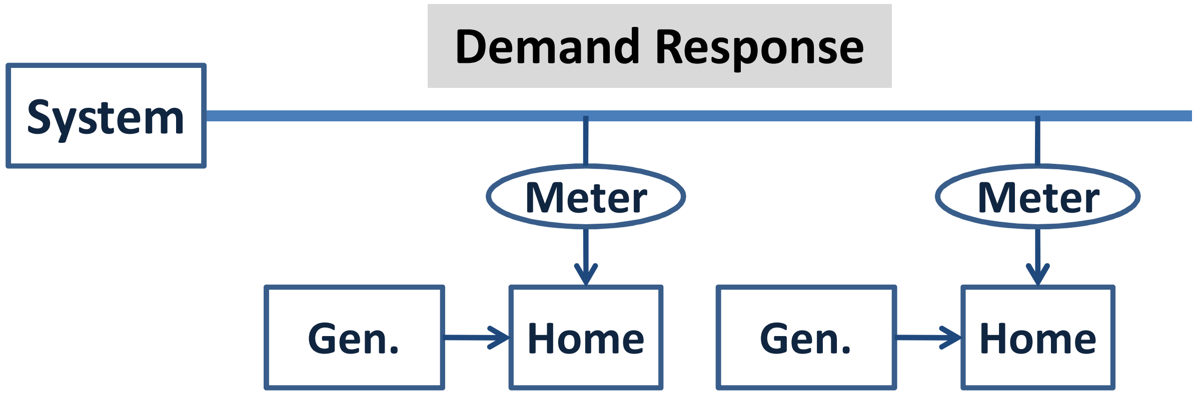
Generation =

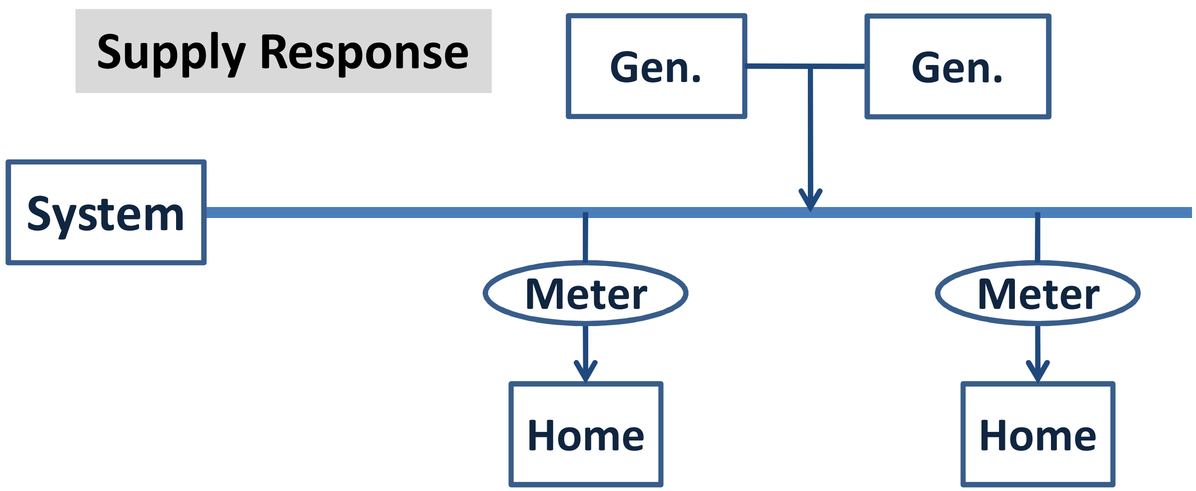
- **Solar PV**
- **Fuel Cell**
- **Diesel**

Hard to detect.

Common in the East.

OK with FERC.





Preferential Treatment of Demand Response

LMP	"745" Payments Received by DR: Payment from the ISO	"745" Payments Received by DR: G Payments from Load	"745" Payments Received by DR: Total DR Payment	Correct Payment Received by Supply
$30	$0	$100	**$100**	**$30**
$100	$100	$100	**$200**	**$100**
$200	$200	$100	**$300**	**$200**
			Preferential	

- **All agree that supply is paid correctly (LMP).**
- **CAISO would effectively pay DR the same as supply.**
- **FERC requires significant preferential treatment for DR.**

2. Overpayment Hurts Consumers

- Getting the price wrong (LMP+G rather than LMP) always causes inefficiency — increased production costs.
- An inefficient diesel may run behind the meter to capture LMP+G when it would not be run as supply.
- Ultimately load customers will bear this extra cost.
- FERC relies on the net-benefits test to attempt to prove the opposite.

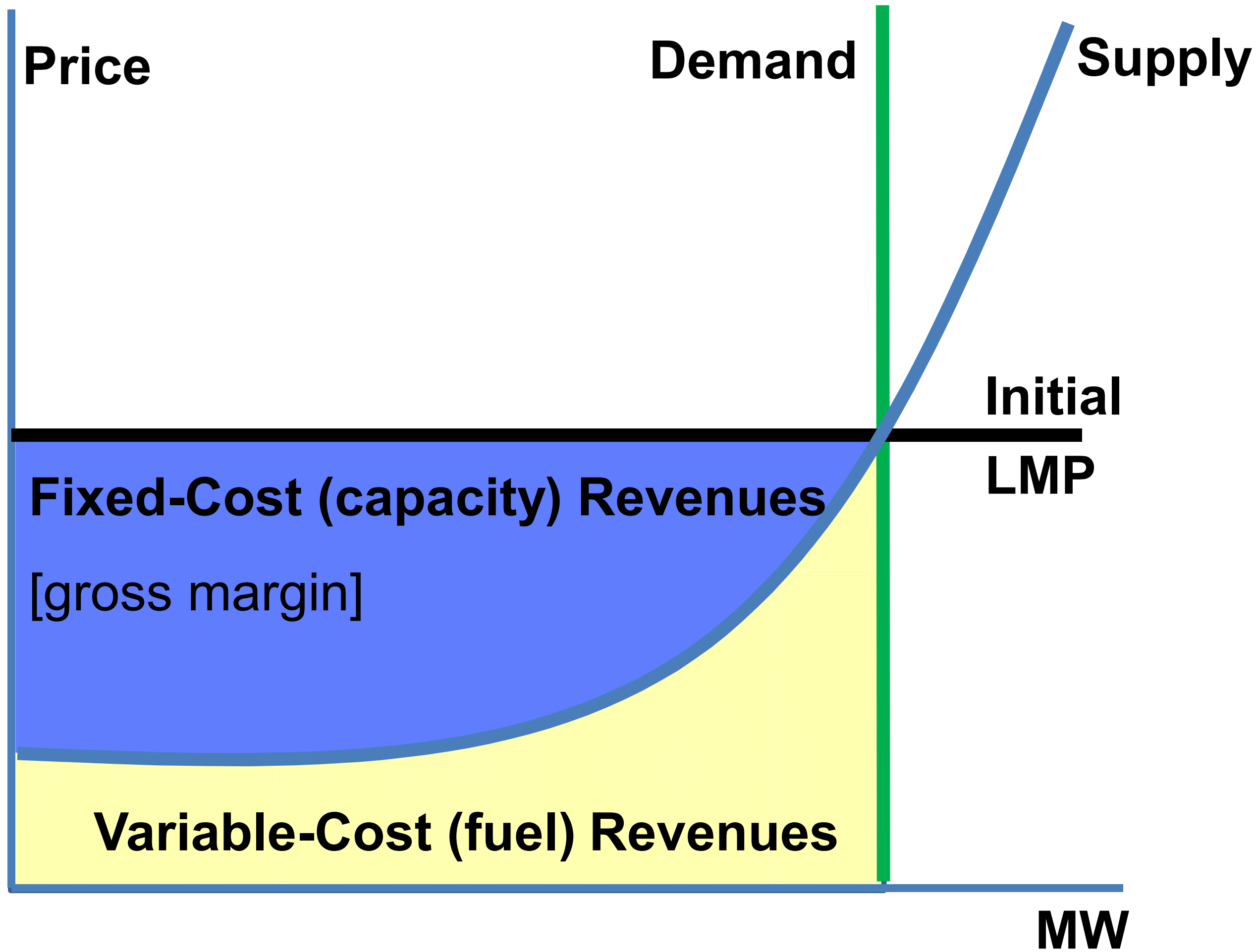
> "First, demand response resources … can be **cost-effective**, as determined by the **net benefits test**."

3. “Benefits” Are Not Real

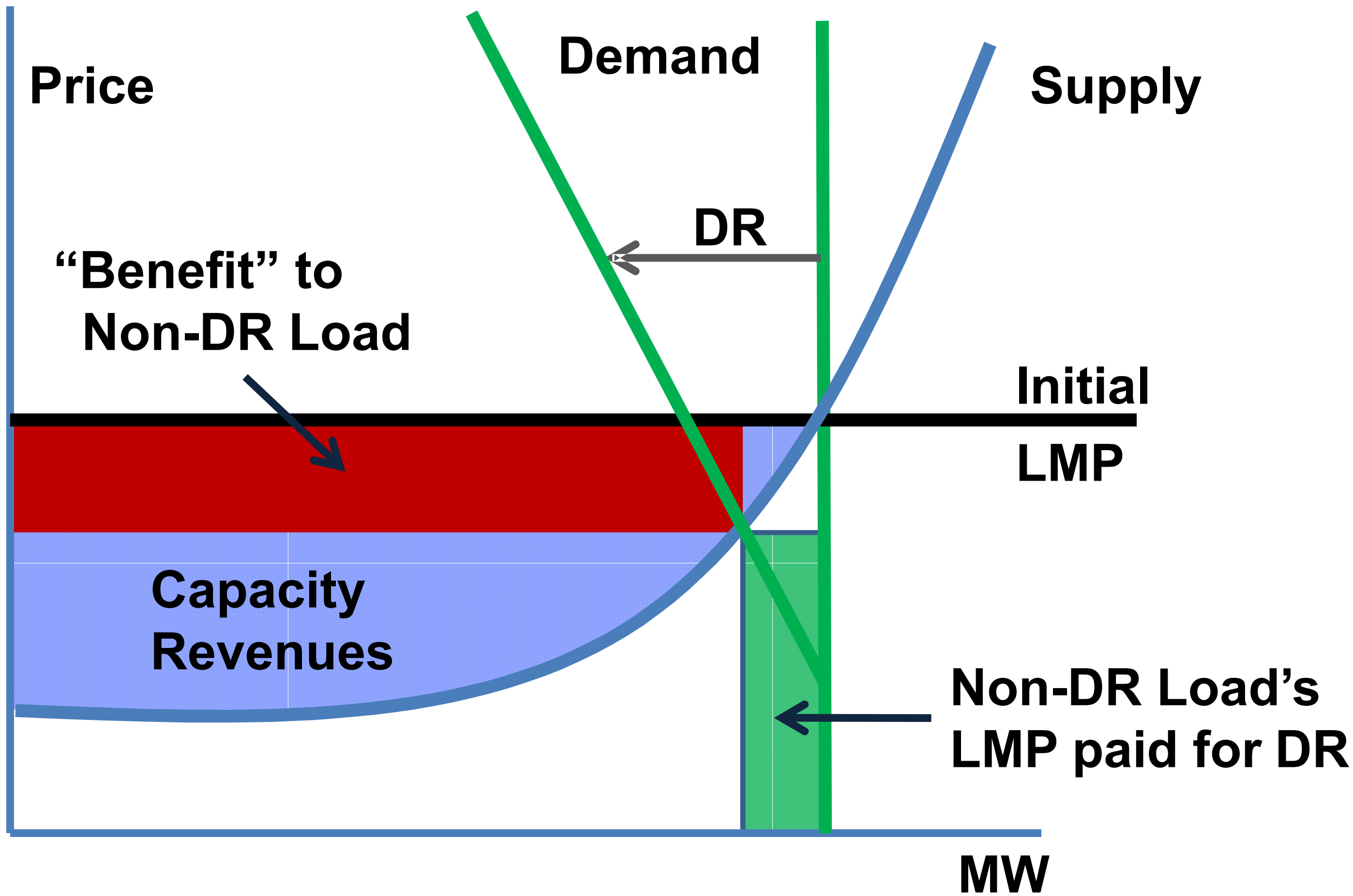
- **Double Payment causes most problems**
- **Net Benefit “justifies” double payment.**
- **“Benefits” come from revenues that generators need to cover their fixed costs (capacity costs).** [next 2 slides]
- **FERC appears to believe they come from DR savings**

  “This Final Rule is focused only on organized wholesale energy markets, not capacity markets.”
- **So FERC did not discover the source of “benefits.” Revealing this, underpins the critiques of the net benefit test in this presentation.**

Before Demand Response



Where "Benefits" Comes from:



- From capacity revenues for still-needed generation.

The Long-Run (metaphorical) Struggle for "Benefits"

- **745 attempts to shift $:** **Gens → Load**
- **The market attempts to shift $:** **Load → Gens**
- **If DR keeps ahead of load growth and gen. retirement, 745 will win, and all generation will end up behind the meters. Victory for monopsony power.**
  - In the end, load loses anyway—no one to take money from.
- **If DR is limited, then new ISO supply will be needed, and the market will win, by raising prices to the point where investors will return.**
  - "Benefits" canceled by high prices.

Specific Effects in the Struggle for "Benefits"

1. **During 745 startup: Forward contracts prevent the flow of "benefits."**

2. **Sooner or later vertically integrated utilities will be able to start re-capturing lost revenues from consumers.**
   - (If the capacity market doesn't end the revenue losses.)

3. **In systems that need new capacity soon, the capacity market may negate "benefits" a couple of years after start-up.**

➢ **For all three: The slower the start of 745, the more the market will expect it, and the quicker benefits will vanish.**

4. Phantom Demand Response

- FERC has directed ISOs to "develop appropriate revisions and modifications, if necessary, to ensure that their ***baselines remain accurate*** and that they ***can verify*** that demand response ***resources have performed***."
- However, the elimination of minimum bid prices would allow DR resources to bid so low that they are always providing DR and the ISO could not detect a fraudulent baseline.
- This can, in aggregate, entail large payments by consumers without any offsetting benefit.