

DER Design and Implementation for a More Resilient Grid (Behind Meter)

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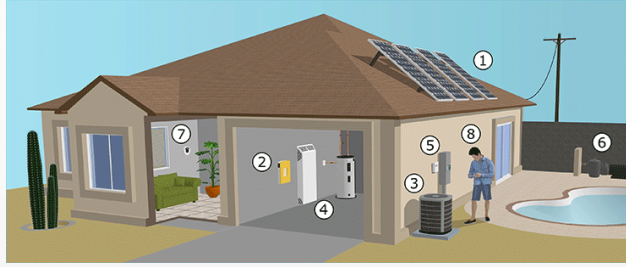
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AriSEIA Phoenix , AZ

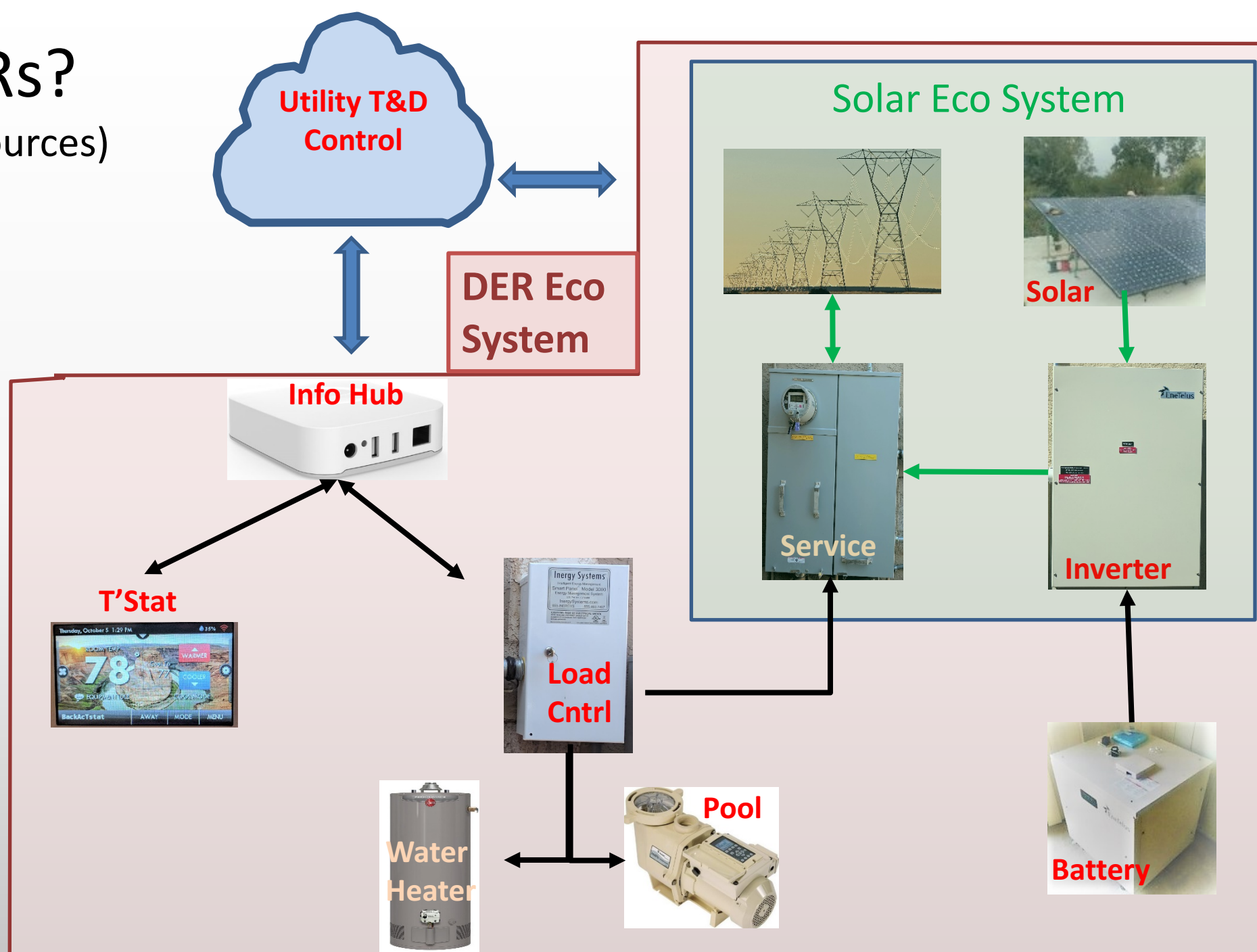


What Are DERs?

(Distributed Energy Resources)

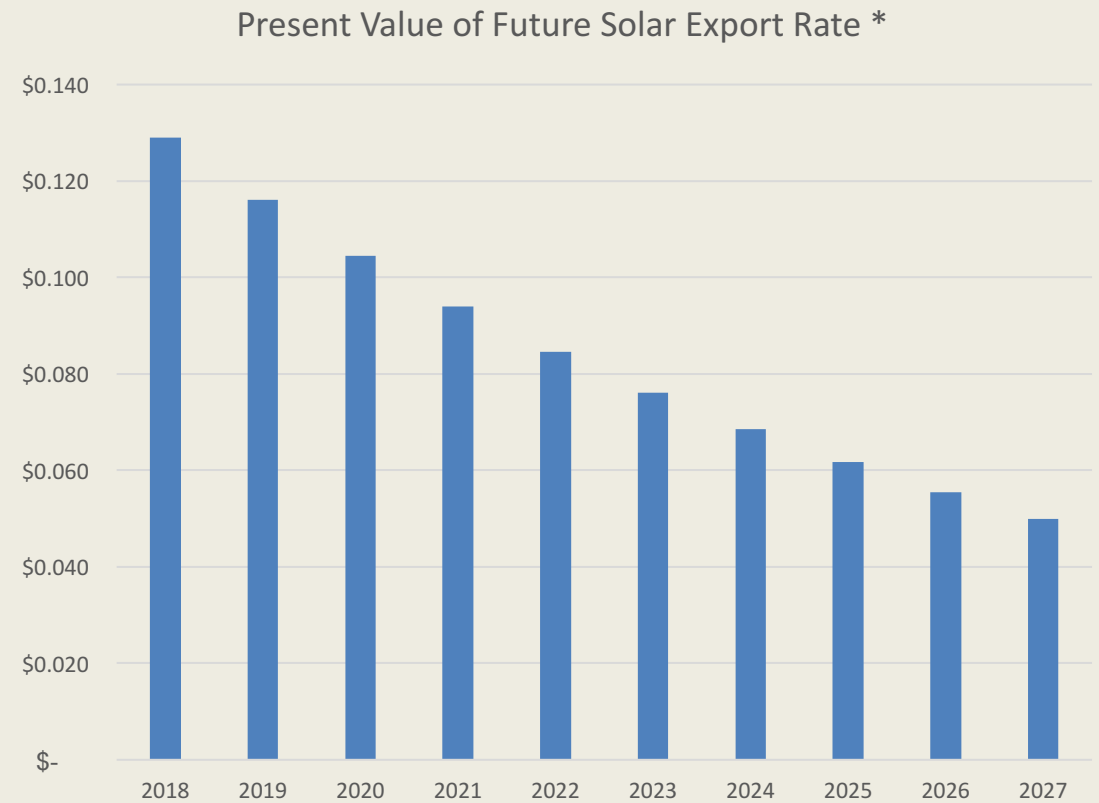


- 1) Solar
- 2) Smart Inverter
- 3) Variable Speed AC
- 4) Battery
- 5) Load Controller
- 6) Pool Pump
- 7) Smart Thermostat
- 8) Elec. Water Heater



Why DERs now?

- New Demand based tariffs send signal to reduce peak usage (Bonbright)
- New NEM rules reduce:
 - value of exported solar
 - Compensation period to 10 yr



Economics of Demand Tariffs

Managing Peak Use reduces bill \$60

- Conditions**
- Typical Phoenix House in Summer
 - Use: 2500 kWh
 - Demand: 8 kW -> 5 kW

Billing Component Comparison				R-Tech	
		Basic L	TOU	Pre	Post
Parts	Demand-kW			8.0	5.0
	1 Monthly	\$20	\$13	\$15	\$15
	2 Use-kWh	\$335	\$339	\$124	\$124
3	Demand-kW			\$162	\$101
Total		\$355	\$352	\$301	\$240

Savings

Tariff Comparison			
	Basic L	TOU	Tech-Pre
Peak	\$ 0.13	\$ 0.24	\$ 0.06
Off Peak	\$ 0.13	\$ 0.11	\$ 0.05
OnPeak %	\$ -	20%	20%
Average	\$ 0.134	\$ 0.136	\$ 0.050
Demand	\$ -	\$ -	\$ 20.25

**Use Costs
Reduced 63%**

