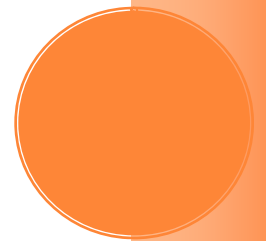


TRANSFORMING THE VALLEY

THROUGH INVESTMENT

IN SMART GRID INFRASTRUCTURE

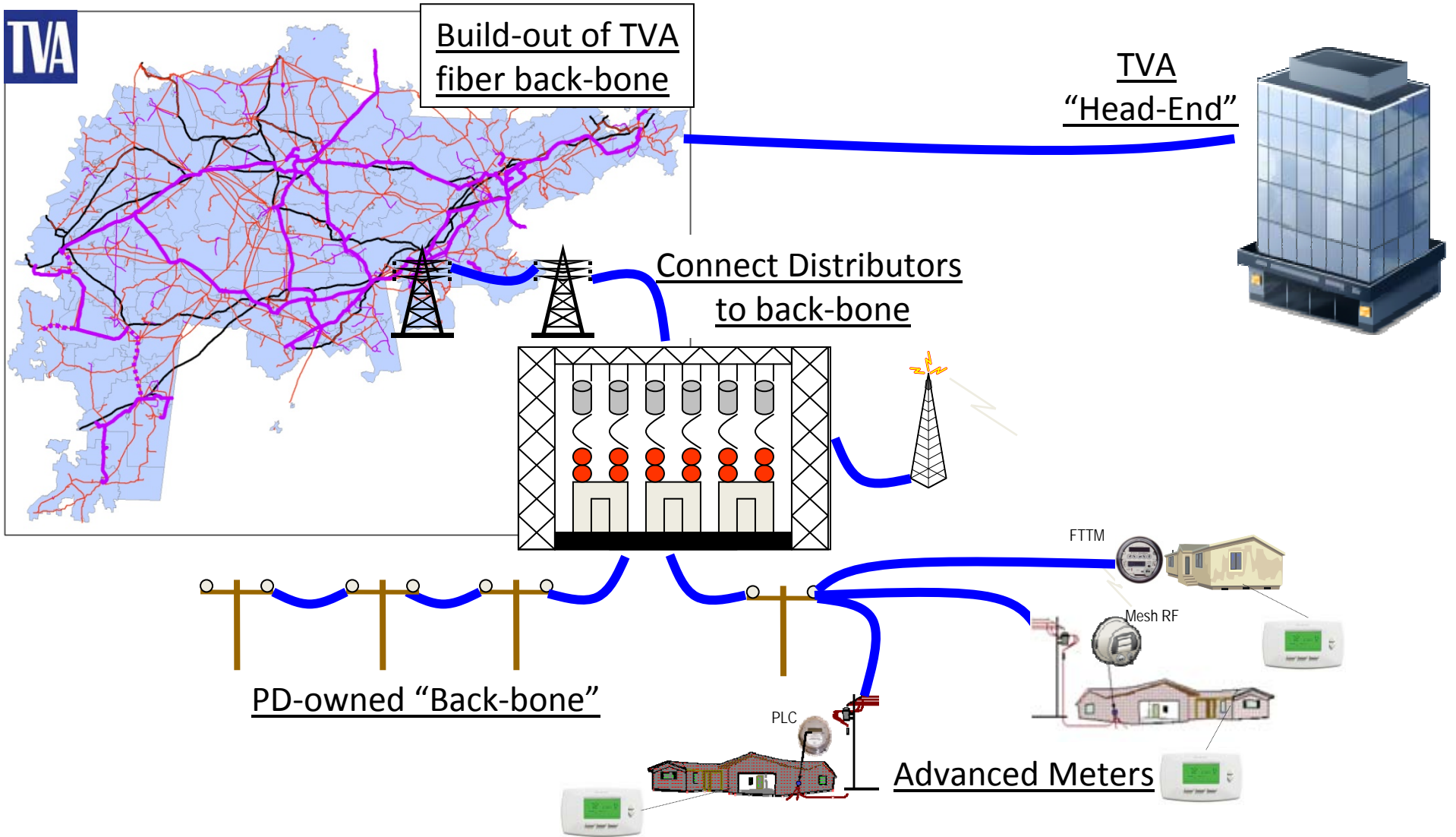


Smart Grid is just three things:
intelligent devices,
two-way communications,
and information management.

What can SG do for you?

- Enables Demand to compete with Supply
- Facilitates advanced rate options
- Empowers greater consumer participation
- Improves Customer Service
- Reduces Cost of Operations
- Provides Valuable Load Data

Smart Grid Enterprise



A smart grid enterprise will
produce an end-to-end
solution.

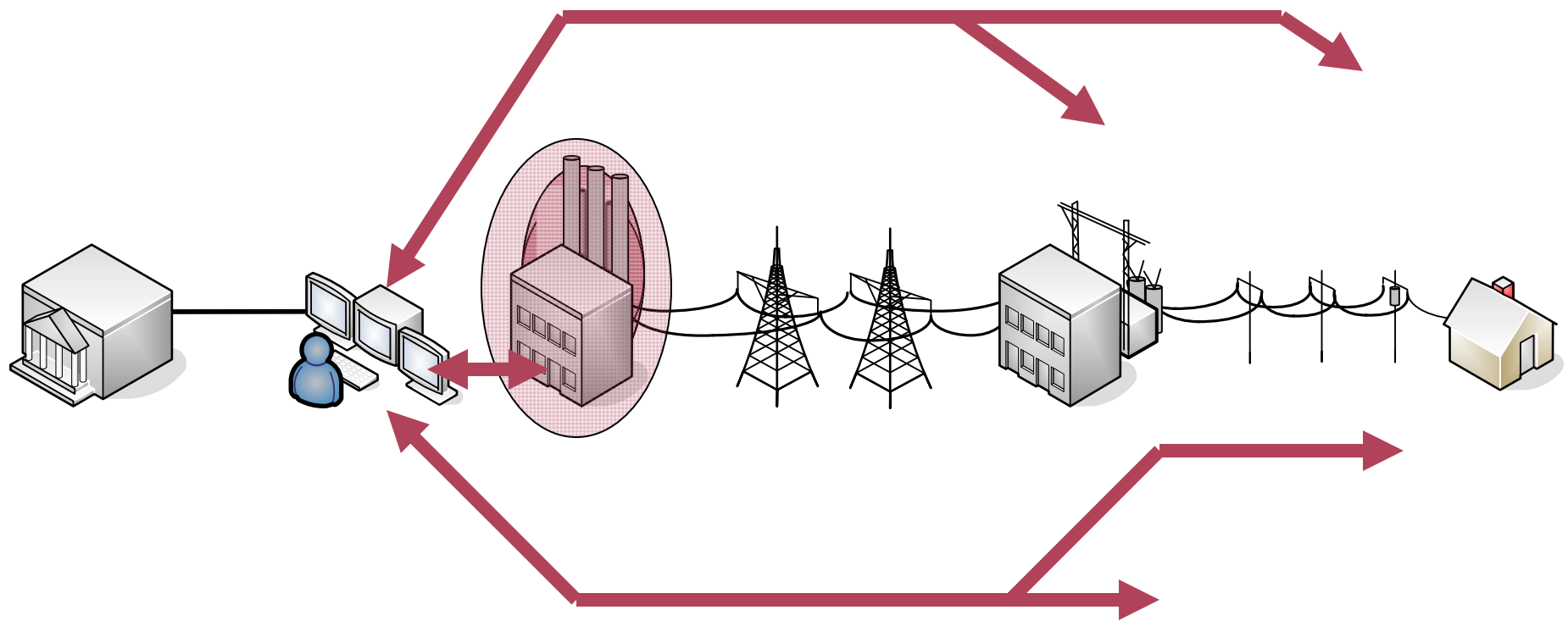
Remember...

- Electrical energy moves at the speed of light
- Generation responds instantly to changes in the load



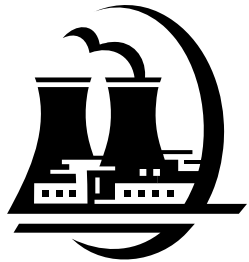
What if the distributed load
could be aggregated...conversant ... and responsive ...
just like a power generation plant ?

aggregated...conversant ... and responsive



VIRTUAL PEAKING PLANT

Load as a Resource



Direct Load Control



Dispatched Voltage Regulation



TOU with
Critical Peak Price

Character

- EAF, EFOR
- Heat Rate, Fuel Cost
- Ramp Time
- Hours of Operation

Operation

- Business Rules
- Economic, Reliability
- 15M, 60M, 24H
- ICCP Signals
- Dispatch Signals
- Settlement/M&V Data

Design

- 15M, 60M, 24H
- ICCP Connection
- MDMS Connection
- M&V, Performance Reporting
- End-to-End Communications Pathway

Settlement

- M&V
- Performance Discounts/Premiums
- MDMS Register

Cash

Water heater Information Solution for Energy

- Residential electric water heating has nearly a 70% market share in the TVA service area
- Typical water heaters have a 4.5kW
- Develop a 2-way communication switch
 - Initiate load control via the AMI system
 - Provide validation of control
 - Monitor hot water availability
 - Provide override to customer
 - Enable coordinated return-to-service





Smart grid enables load to
compete as a supply resource.