

Value of a VAR Panel

Regulatory Perspective

DOE Energy Advisory Committee Meeting

June 29, 2015

Denis Bergeron, Maine Public Utility
Commission

Regulator's Perspective

- “Safe and Reliable Service at Just and Reasonable Rates”
 - Safety and Reliability are job one, economic considerations follow
 - What is “Just and Reasonable”

Value is a matter of Perception

- Under completely bundled, vertically integrated retail structures, the incremental cost of reactive power was perceived to be relatively small.
- Under vertically integrated retail structures with increasing wholesale transactions, it was perceived to be non-zero (Northern States Power 1990)

Value is a matter of Perception

- Under Order 888 – reactive power is an “ancillary service,” and still thought to be quite low.
- Value of a var is different for a transmission provider than it is for a competitive generator.
- In some areas, low incremental cost to provide reactive led some to think generators should provide it as a condition for interconnection.

Value is a matter of Perception

- Under Order 888 – reactive power is an “ancillary service,” and still thought to be quite low.
- Value of a var is different for a transmission provider than it is for a competitive generator.
- In some areas, low incremental cost to provide reactive led some to think generators should provide it as a condition for interconnection.

Value is a matter of Perception

- Society under values a public good (e.g. police protection, clean air – the tragedy of the commons)
- Reliability is a public good.
- The electric system cannot be operated without adequate reactive power.
- A market will not purchase the correct amount of reactive power.
- Vars need to be procured by a central administrator.

You get what you pay for

- Regulators have to figure out how to price reactive power.
- If it's provided through transmission devices (statcoms, cap banks), it can still be purchased through cost of service rates.
- If it's from generation based sources – in unbundled regions, it needs to be priced at energy market opportunity costs

Our perceptions are changing

- The increasing transactions on the grid at wholesale have caused us to understand the opportunity costs of providing vars for generators.
- Technological advances are providing volt/var optimization opportunities on the distribution system (lost revenues are nearly analogous to opportunity costs).
- Increasing number of devices at the distribution level that can provide vars – but need compensation

Value

- Most of our recent power failures are directly related to the inadequate availability of reactive power to maintain system voltages.
- In the 2003 First Energy outage 70,000 MW of load was lost to 55 million people for nearly 4 hours – easily exceeding \$1 billion in costs.
- If value is the measure of utility provided by a good or service compared to its cost, Vars are indeed valuable and we have to find a way to pay for them.