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Additional Topics: CVR/VVO, Fuel Substitution, and Reporting Requirements

2017 Integrated Energy Policy Report
Docket No. 17-IEPR-06

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California Energy Commission, Arthur Rosenfeld Room
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Utility-Related Topics to be Covered

- Conservation Voltage Reduction
- Fuel Substitution
- Reporting Requirements

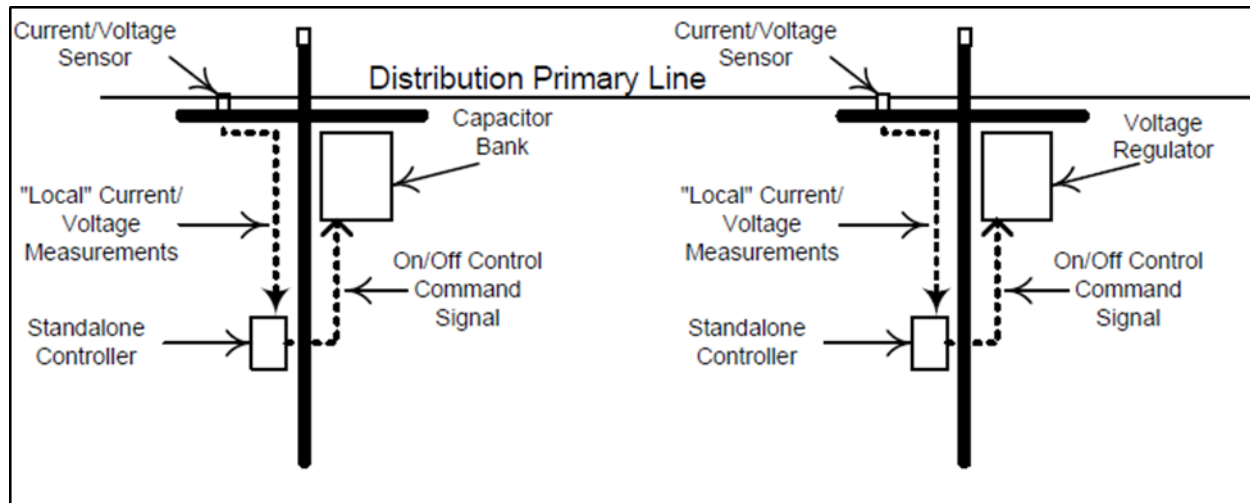


Part 1: Conservation Voltage Reduction

- Explicitly included in PRC 25310(d)(9) as a compliance option
- CVR has evolved over time to be better described as CVR/VVO, e.g., CVR/Volt-Var Optimization (CVR/VVO)
- Only one utility deploying CVR/VVO at scale although several have conducted pilots

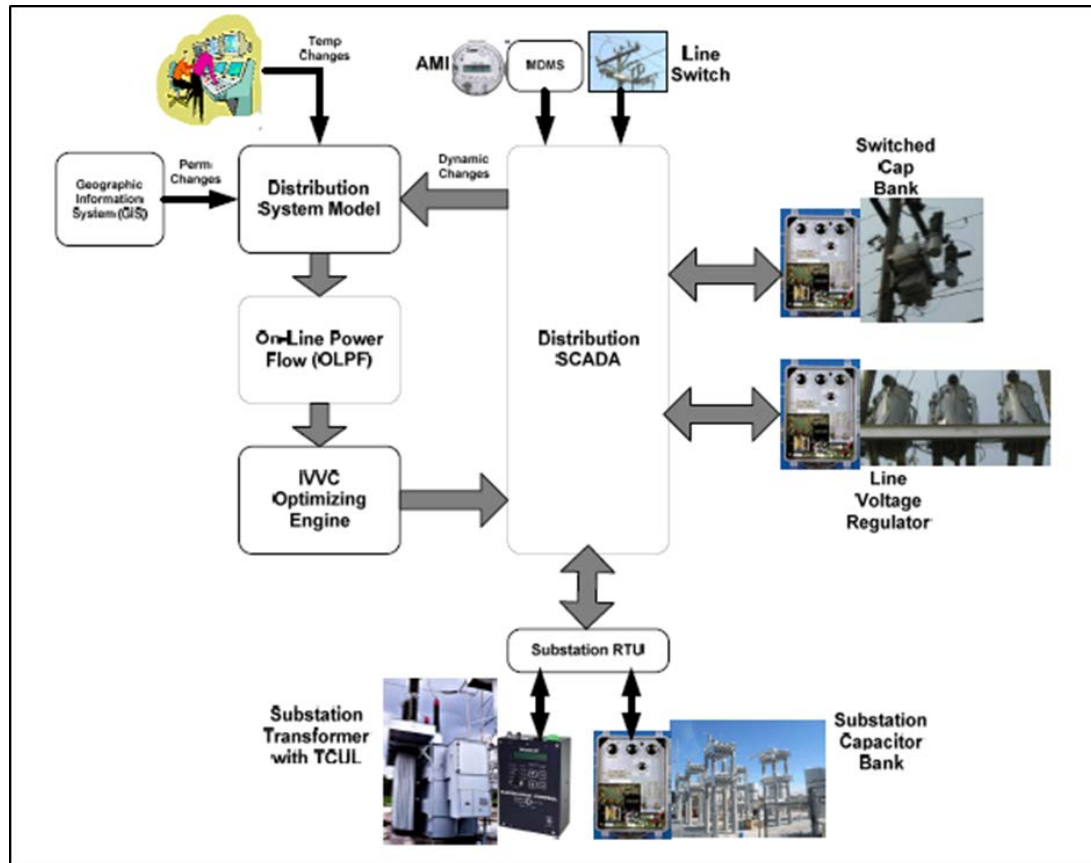


Old Style CVR





Modern CVR/VVO





Cost-Effectiveness Issues

- CVR/VVO can readily be part of a comprehensive distribution automation upgrade, but stand alone is more costly
- Loading patterns on some feeders and whole substations may not justify CVR/VVO deployment
- Evolving relationships for generation supply can reduce utility financial benefits



Policy Issues/Next Steps

- Policy Questions:
 - *Is additional research/demonstration needed to determine whether various CVR/VVO technologies are cost effective in loading conditions of feeder configurations?*
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 - *Are further statutory changes warranted to encourage CVR/VVO even when it appears to be cost-effective?*
- Next Steps:
 - *Highlight potential focus for further effort in the next utility target setting cycle*



Part 2: Fuel Substitution

- January 2017 Framework paper defined:
 - fuel substitution to mean end-use device shifts from natural gas to electricity
 - Fuel switching to mean non-utility fuels shifting to electricity
- PRC 25310(a) excludes fuel switching, e.g., transportation electrification



Fuel Substitution Requirements

- PRC 25310(d)(10) requires both end-user energy savings and GHG emissions
- Means site energy savings and source GHG emission reductions
- Does not align directly with CPUC 3-prong test for fuel substitution programs
- No utility-proposed fuel substitution programs, so issues can be studied further



Site Energy Savings

- Energy consumption of a replacement electricity device must be lower than that of the natural gas device being replaced (both measured in btu units)
- Actual heat pump performance is important
- Should existing conditions or code baseline be assumed for natural gas equipment being replaced?



Source GHG Emission Projections

- Staff proposes that the net GHG emission reduction requirement be examined using:
 - a with/without analysis of the hourly shifts in load from penetration of electricity fuel substitution measures
 - a production simulation model with proper inputs for performance of renewable generation
 - a resource mix that accurately matches the end-use customers expected to participate in the fuel substitution program



Some Implementation Questions

- *Should the resource mix used to assess GHG savings be utility-specific or statewide?*
- *What process should be used to develop minimum heat pump performance standards and performance of displaced gas devices?*
- *What process should be used to reconcile the existing CPUC 3-prong test versus SB 350 EE requirements?*
- *Which utility obtains credit towards SB 350 EE target compliance – the natural gas utility with departing load or the electric utility gaining load?*



Part 3: Reporting Requirements

- PUC 9505 and PRC 25310(b) establish POU reporting requirements to the CEC:
 - Annual savings estimates submitted each March 15
 - 10-year projections submitted every four years
- PUC 454.55 refines CPUC requirements and its consultation with the CEC for SB 350
 - CPUC develops energy efficiency potential and goals projections for IOU service areas
 - CEC and CPUC are coordinating efforts
- No statutory basis for non-utilities to report



New Data Needs

- PRC 25310(e) requires the Energy Commission to report biennially to the legislature about progress toward the SB 350 goal
- In addition to a basic report on progress, the CEC has two specific mandates: impacts on disadvantaged communities, and effect by local service areas on a seasonal and hourly basis
- Both appear to require additional data from utilities



Hourly Impacts by Utility

- Since each utility's mix of programs and measures is unique, the hourly impact of these will be unique
- POUs are not now reporting seasonal or hourly impacts nor does the modeling by CMUA's consultant address hourly impacts
- A new effort to develop seasonal and hourly assessments is needed



Savings in Disadvantaged Communities

- Only utilities can provide data about program participation in disadvantaged communities as defined by H&S 39711
- Tracking participation by Zip Code appears to be necessary
- Some utilities may have this capability already, while others may have to develop it



Implementation Issues

- Staff would like improved information from medium and large POUs as part of March 2018 annual reports
- A collaborative effort is needed, given this tight time frame
- Regulations may eventually be required, but are infeasible in this time frame



Questions?