

Welcome To
***“Impact of Metering on CHP
in Residential Buildings”***

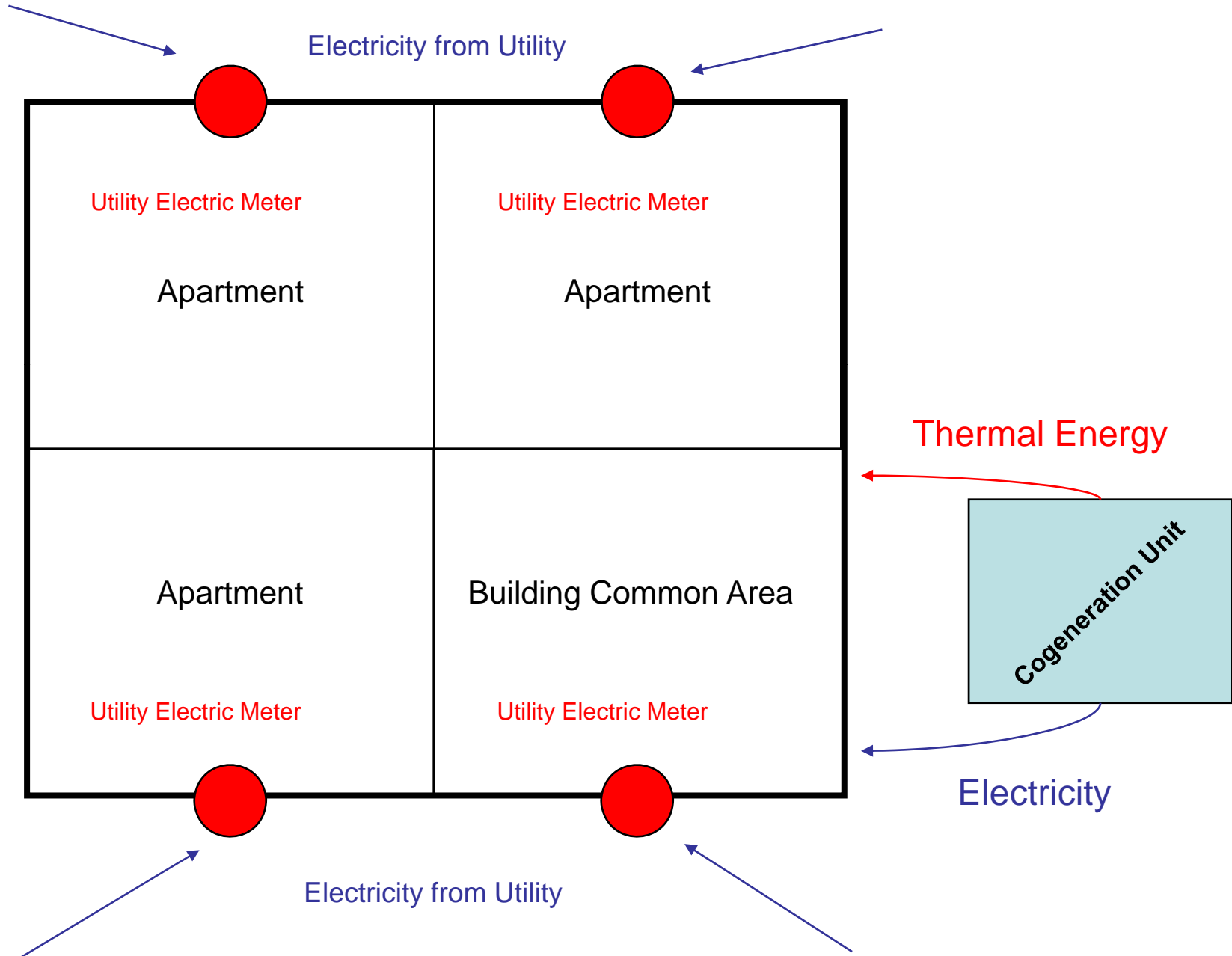
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“CHP in New York State – Two Years Later”

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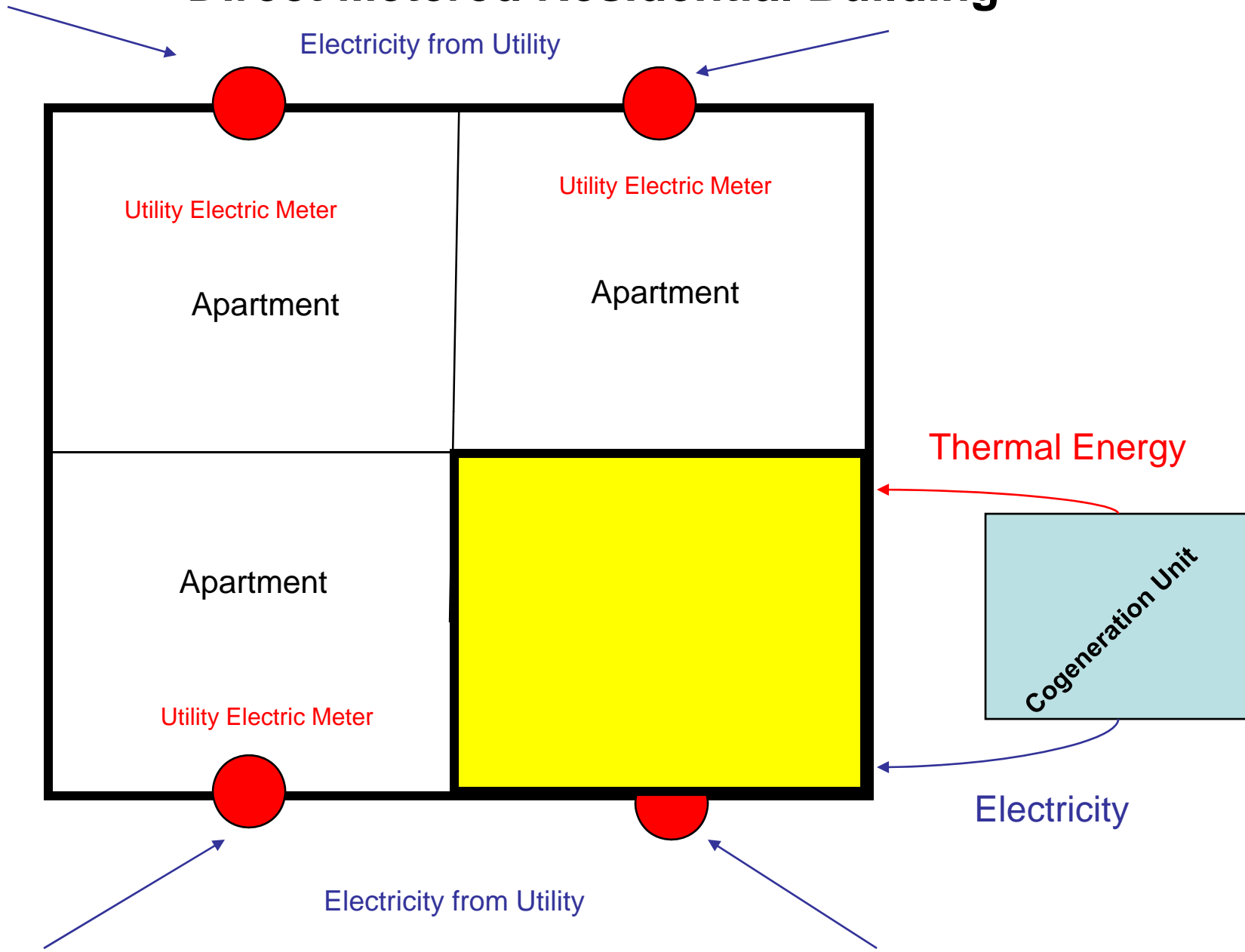
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How Building Electric Metering Impacts Cogeneration

Direct Metered Residential Building



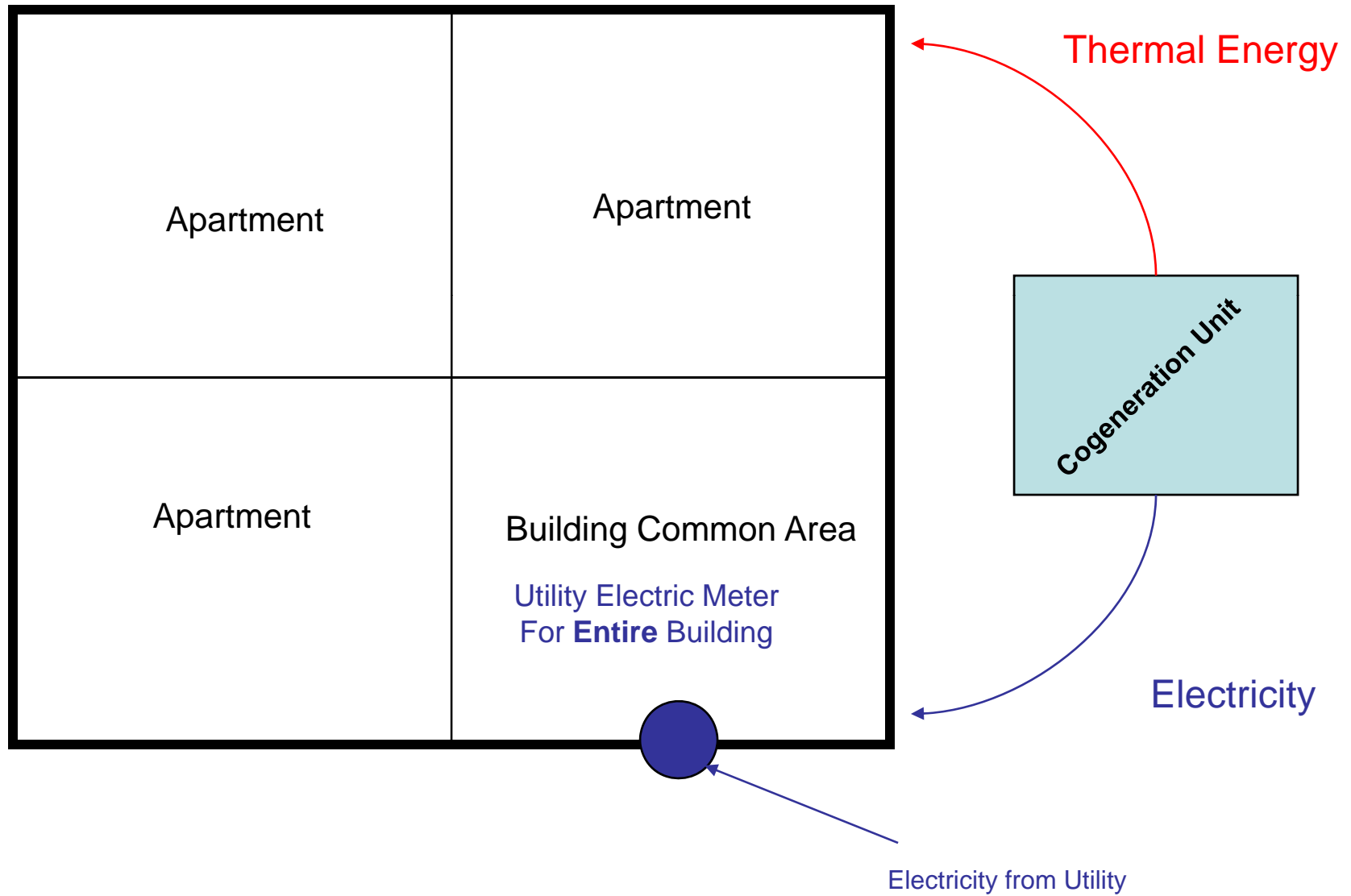
Direct Metered Residential Building



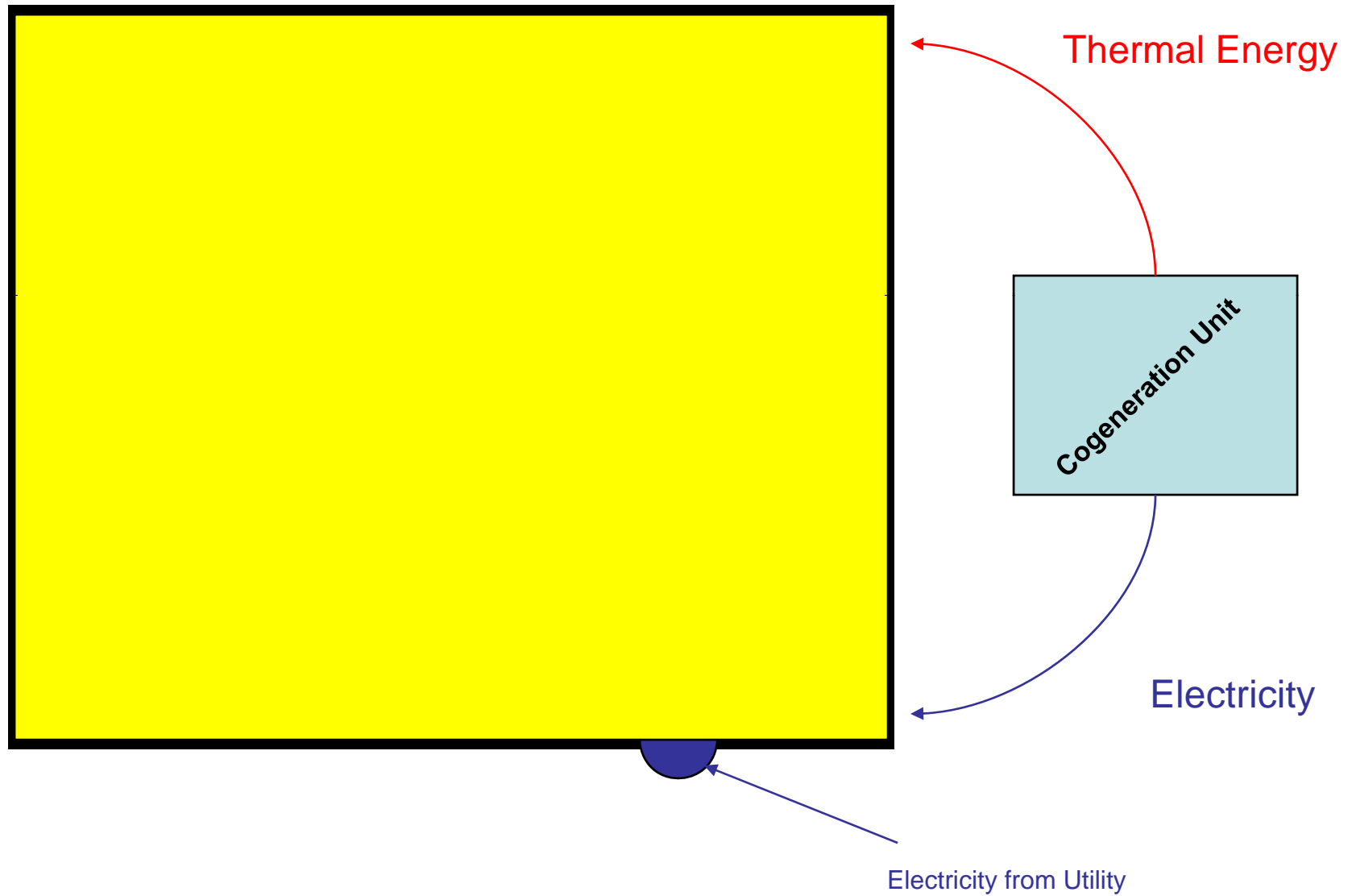
Why Directly Metered Residential Buildings Are Generally Poor Cogeneration Candidates

1. The Building Electric Load available to the cogeneration unit is limited by the Common Area Electric Load. The Apartments receive their electricity directly from the utility and are *not* available to the onsite cogeneration system.
2. By restricting the electric load available to the cogeneration system, the amount of thermal energy (hot water or steam) available from the cogeneration unit(s) to the building is *also limited* as this energy form is a by-product of generating electricity.
3. Directly Metered Residential Cooperatives and Condominiums *are permitted to convert* to Master Metered status upon meeting certain conditions.

Master Metered Residential Building



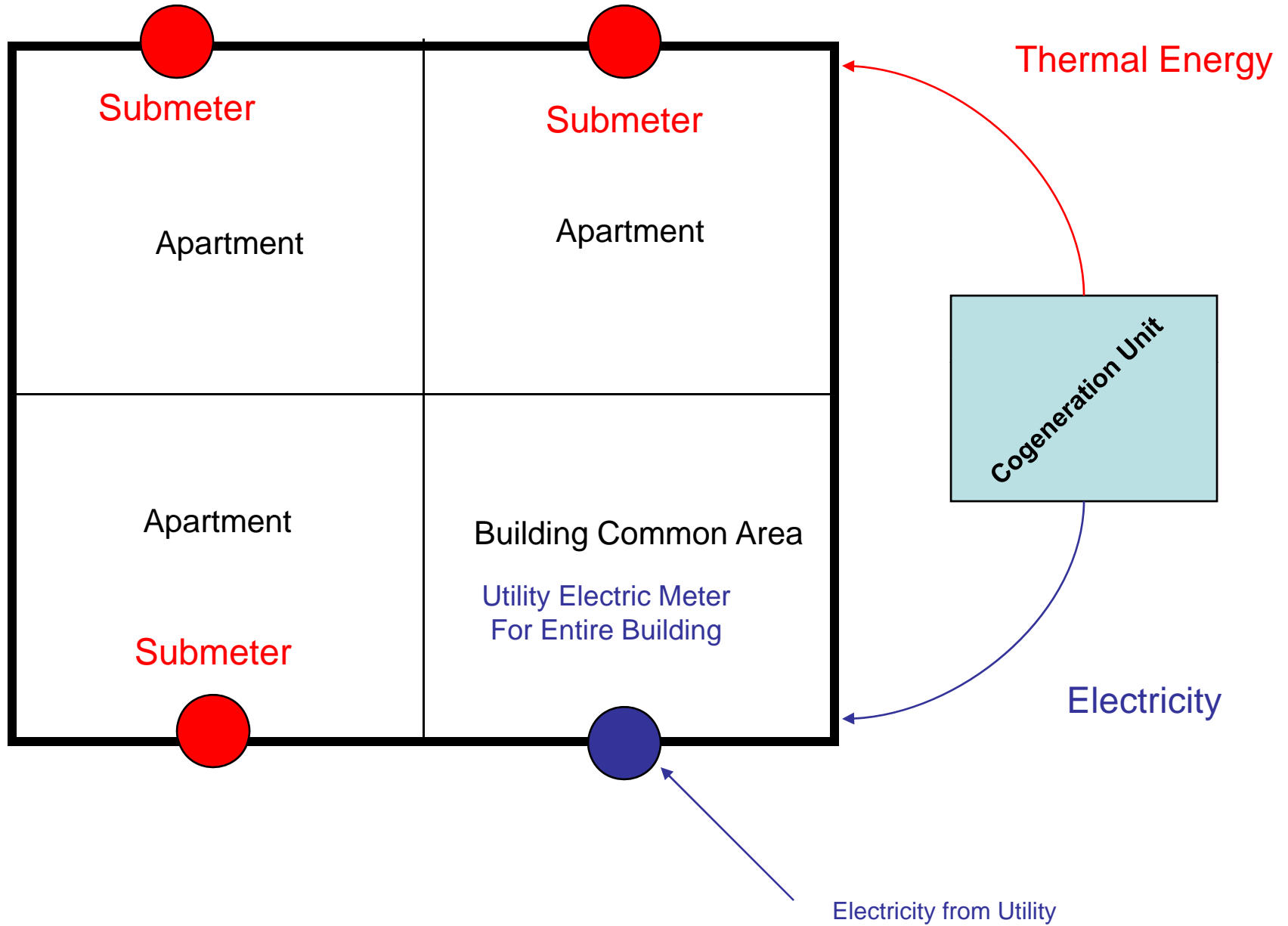
Master Metered Residential Building



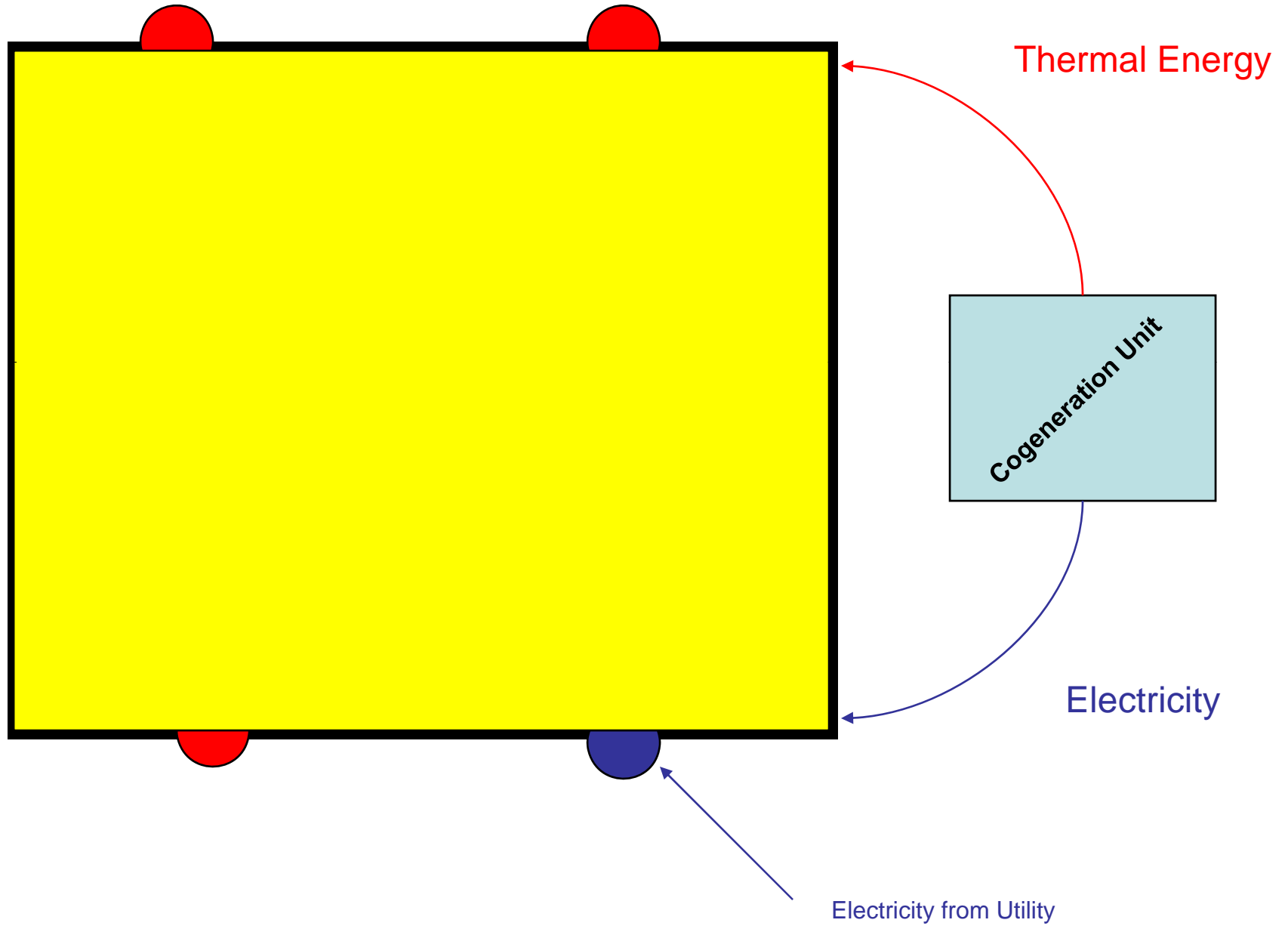
Why Master Metered Residential Buildings Are Generally Good Cogeneration Candidates

1. The ***entire*** Building Electric Load (Apartment Sector and Common Area) is available to the cogeneration system.
2. Because the electric load available to the cogeneration unit(s) is ***not*** restricted to only satisfying the common area load, a greater amount of thermal energy (hot water or steam) from the cogeneration system can be utilized by the building.

Submetered Residential Building



Submetered Residential Building



Why Submetered Residential Buildings Are Generally Good Cogeneration Candidates

1. The ***entire*** Building Electric Load (Apartment Sector and Common Area) is available to the cogeneration system because the building continues to receive its electricity in bulk from the utility. The submeters (apartment meters) are ***not*** utility meters but belong to the building.
2. Because the electric load available to the cogeneration system is ***not*** restricted to only satisfying the common area load, a greater amount of thermal energy (hot water or steam) from the cogeneration unit(s) is available to the building.

Strategic Alliances

Common Market for both Electrical Submetering and Cogeneration are Master-Metered Residential Buildings.



Strategic Alliances

Common market also includes Directly Metered residential cooperatives and condominiums which are permitted (subject to meeting New York State Public Service Commission voting requirements) to convert to Master Metered status and then implement electrical submetering and cogeneration.

Remember, building must be **Master Metered** in order for the apartment sector to be available to the cogeneration system.

Strategic Alliances

Numerous buildings participating in NYSERDA sponsored cogeneration evaluations and implementations were recruited from the NYSERDA sponsored “*Submetering in Multifamily Buildings*” program.

Buildings Implementing Both Electrical Submetering and Cogeneration



***Hazel Towers
2-60 KW IC units***



***Stevenson Commons
1-70 KW Microturbine***

Buildings Implementing Both Electrical Submetering and Cogeneration



***Clinton Hill Apartments
Group of Microturbines***



***Park Ten
1-70 KW Microturbine***

Barriers to Electrical Submetering become Barriers to Cogeneration

- **The regulations imposed by the New York State Public Service Commission in order for Residential Buildings to Implement Electrical Submetering *Impose a Barrier* for these Residential Buildings to Implement Cogeneration because they often force Building Owners to Choose between the Benefits of Metering Individual Apartments versus the Benefits of Cogeneration to Reduce Building Operating Costs.**
- **If PSC Regulations make it Difficult for Building Owners to Submeter, the only alternative for Metering Individual Apartments becomes Direct Metering. With Direct Metering, the feasibility of applying Cogeneration is Greatly Diminished.**

Sample of Specific Barriers to Electrical Submetering

- Home Energy Fair Practices Act (HEFPA) as interpreted by the PSC essentially establishes relationship between tenant and building owner as if building owner were a utility insofar as billing and verification are concerned.
- PSC does not allow building owner to disconnect electricity for failure of tenant to pay. Utility has that ability to disconnect apartment electricity for failure to pay. The utilization of courts to collect unpaid utility costs is time consuming and not cost effective.
- The polling of non-shareholders creates turmoil between building owner and tenants. This PSC requirement is unrealistic because a requirement for a submittal of an application to the PSC exists when at least one non-shareholder opposes submetering.
- The building owner is relieved of the disadvantages listed above if he directly meters, thereby, eliminating the cogeneration option.
- The PSC requirement for a shareholder vote in a master metered building, particularly a Mitchell-Lama building which is under the jurisdiction of HPD is unrealistic.

Submetering a master metered residential building prior to implementing cogeneration *may reduce* the equipment size requirement and associated cost due to the reduction in the building's load profile associated with the conservation effect from submetering.

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