Cyber secure Dynamic Monitoring and Decision Systems (DyMonDS)

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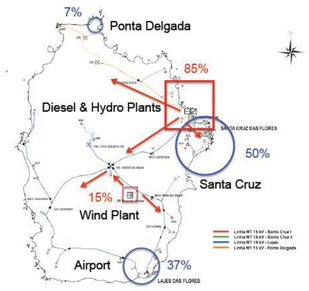
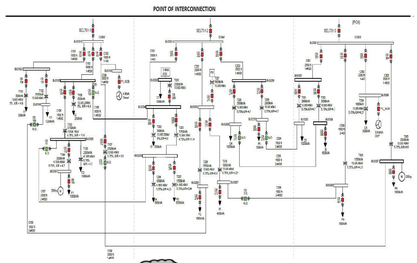
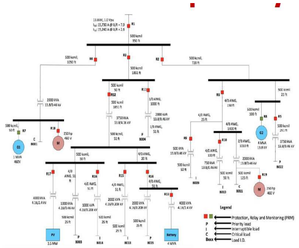
Challenges and opportunities

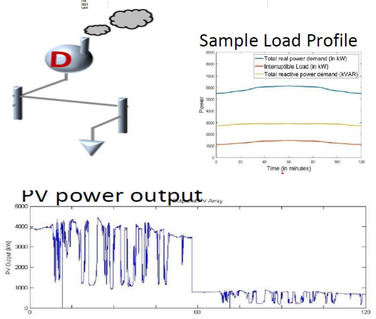
- ***Technical challenges:*** Design and control to enable stable operation for wide ranges of input variations and topological changes.
- ***Business challenges***: Maximize DER deployment, while minimizing load shed, and need for expensive fast storage.
- ***Technical opportunities:*** Major innovation at value.
- ***Business opportunities:*** ***a) for utilities*** *(high tech business of electricity services at value);* ***b) for vendors*** *(massive development and deployment of smart hardware and system cyber software);* ***c) for electric energy users*** *(choice at value).*
- ***Societal opportunities:*** *Clean, secure electricity service at choice and value.*

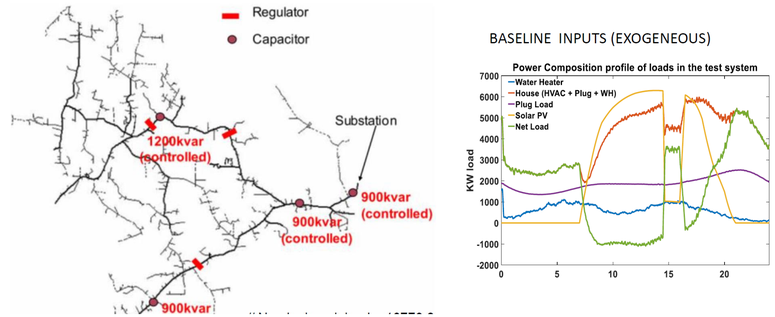
Real-world microgrids examples

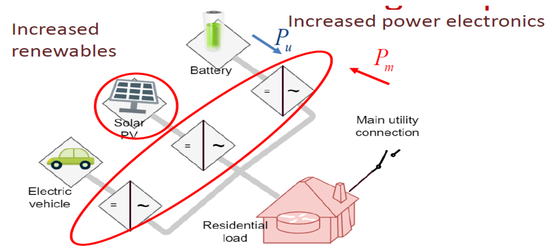




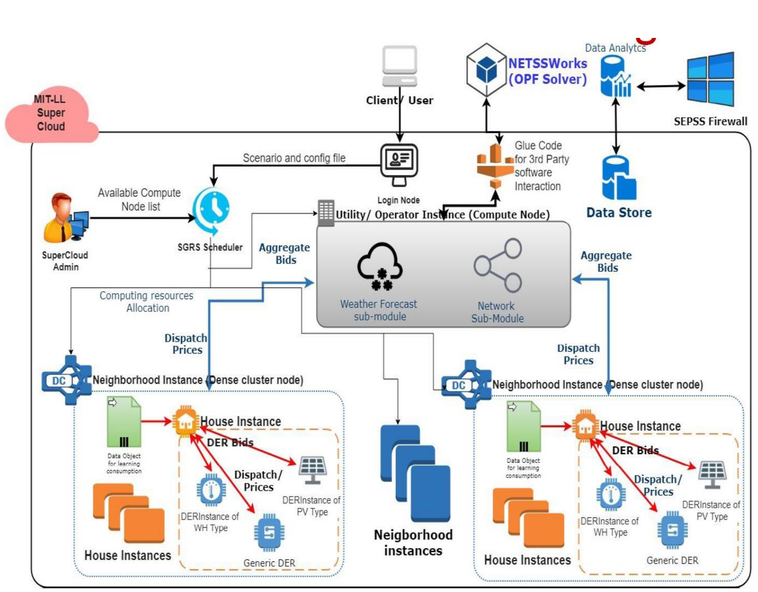




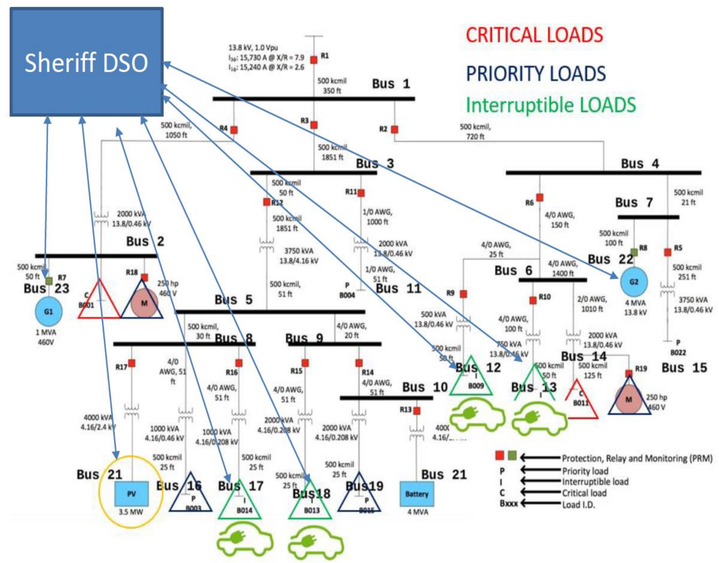




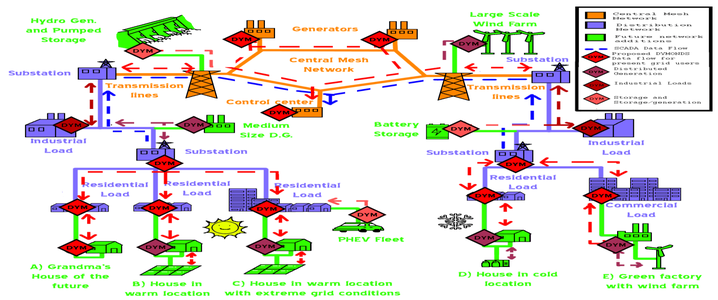
MIT DyMonDS based Demos



Minimal coordination/decentralized cyber-secure control



Aligning distributed sub-objectives



Based on Ilic, Energyville23 keynote presentation