SMART GRID
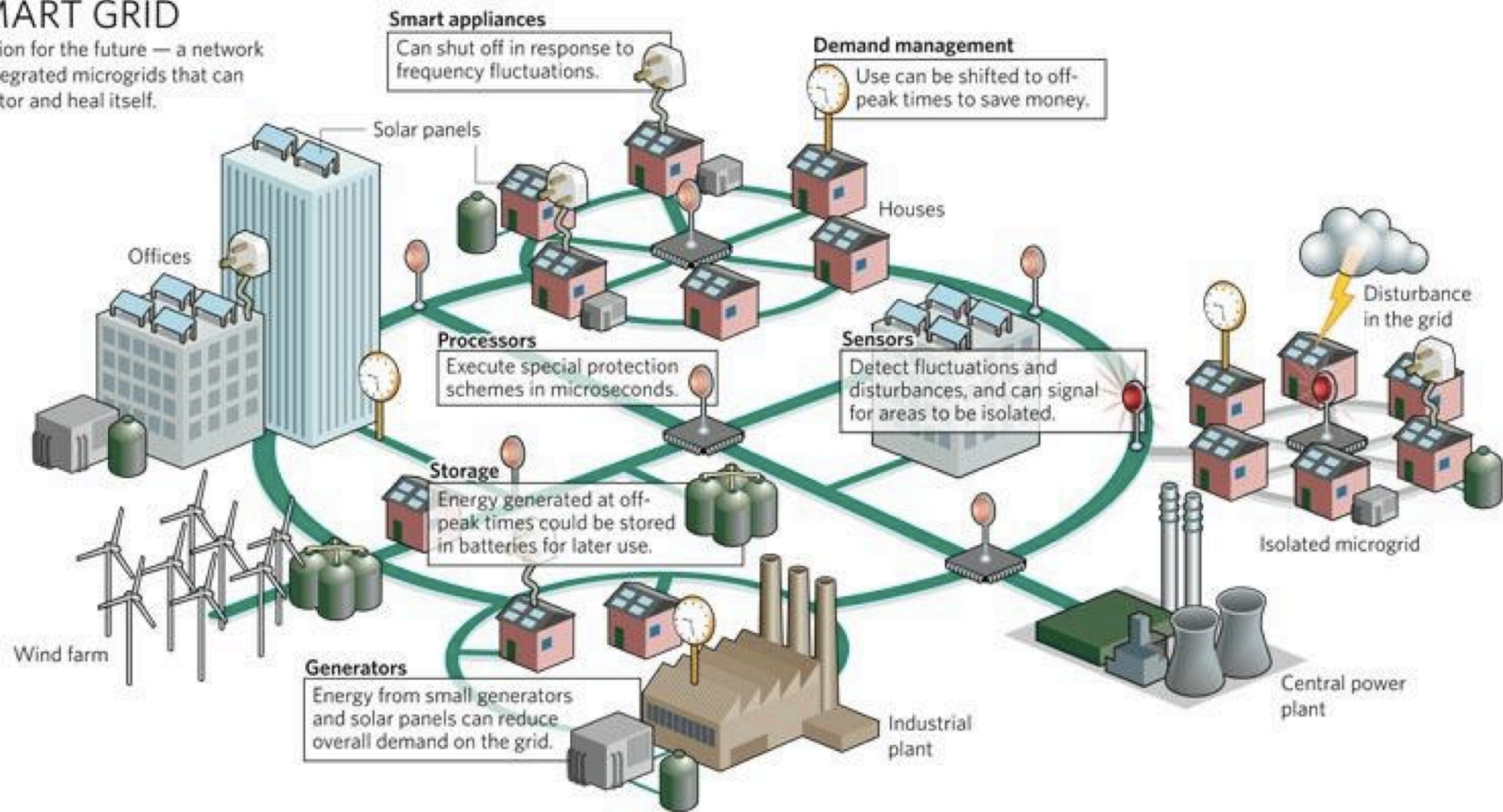
A vision for the future — a network of integrated microgrids that can monitor and heal itself.

Smart appliances
Can shut off in response to frequency fluctuations.

Demand management
Use can be shifted to off-peak times to save money.

Solar panels

Offices

Houses

Processors
Execute special protection schemes in microseconds.

Sensors
Detect fluctuations and disturbances, and can signal for areas to be isolated.

Disturbance in the grid

Storage
Energy generated at off-peak times could be stored in batteries for later use.

Isolated microgrid

Wind farm

Generators
Energy from small generators and solar panels can reduce overall demand on the grid.

Industrial plant

Central power plant

SMART Connected Products

sense4things

CISCO

*"Huge Explosion of devices… candidly doesn't do you any good **without the applications** to make them practical."*

— **John Chambers, CEO**

500 M

1 Trillion

5 M

50B

100K

5B

1B

7B

9B

2010   2020
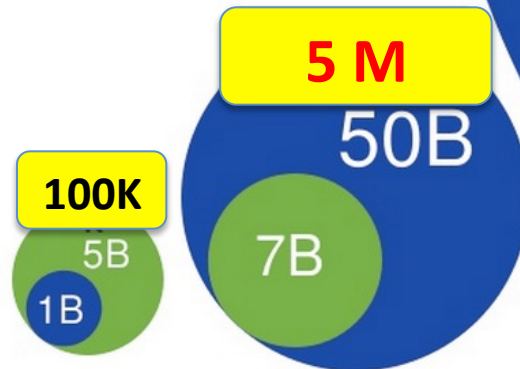
2035
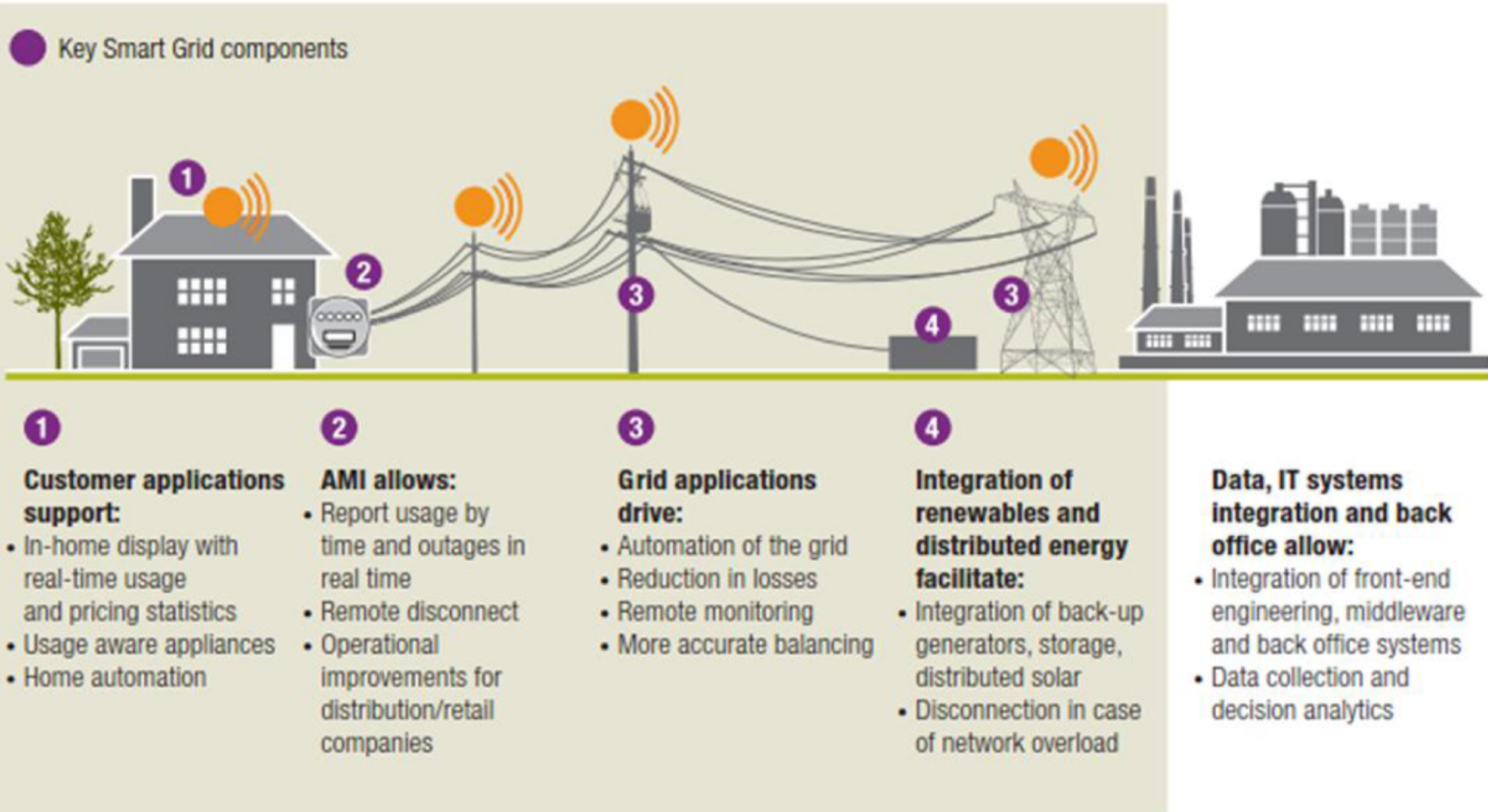
McKinsey Global Institute

$6.2T

Estimated potential economic impact of The Internet of Things in 2025, range from $2.7 – 6.2 trillion annually

— **McKinsey Global Institute**

sense4things

Key Smart Grid components

1 Customer applications support:
- In-home display with real-time usage and pricing statistics
- Usage aware appliances
- Home automation

2 AMI allows:
- Report usage by time and outages in real time
- Remote disconnect
- Operational improvements for distribution/retail companies

3 Grid applications drive:
- Automation of the grid
- Reduction in losses
- Remote monitoring
- More accurate balancing

4 Integration of renewables and distributed energy facilitate:
- Integration of back-up generators, storage, distributed solar
- Disconnection in case of network overload

Data, IT systems integration and back office allow:
- Integration of front-end engineering, middleware and back office systems
- Data collection and decision analytics

Model-based Development Reduces Time/Cost by 10X
ThingWorx "codeless" development enables you to model the Services, Storage, Events, Collaboration, and Relationships for the Things in your world. This results in high levels of efficiency and reuse.

Mashup Builder: Rapid Creation of IoT Apps
ThingWorx' "drag and drop" Mashup Builder enables developers to rapidly create applications, mobile UI, analytics, and search-based BI, helping solve problems and capture opportunities faster.
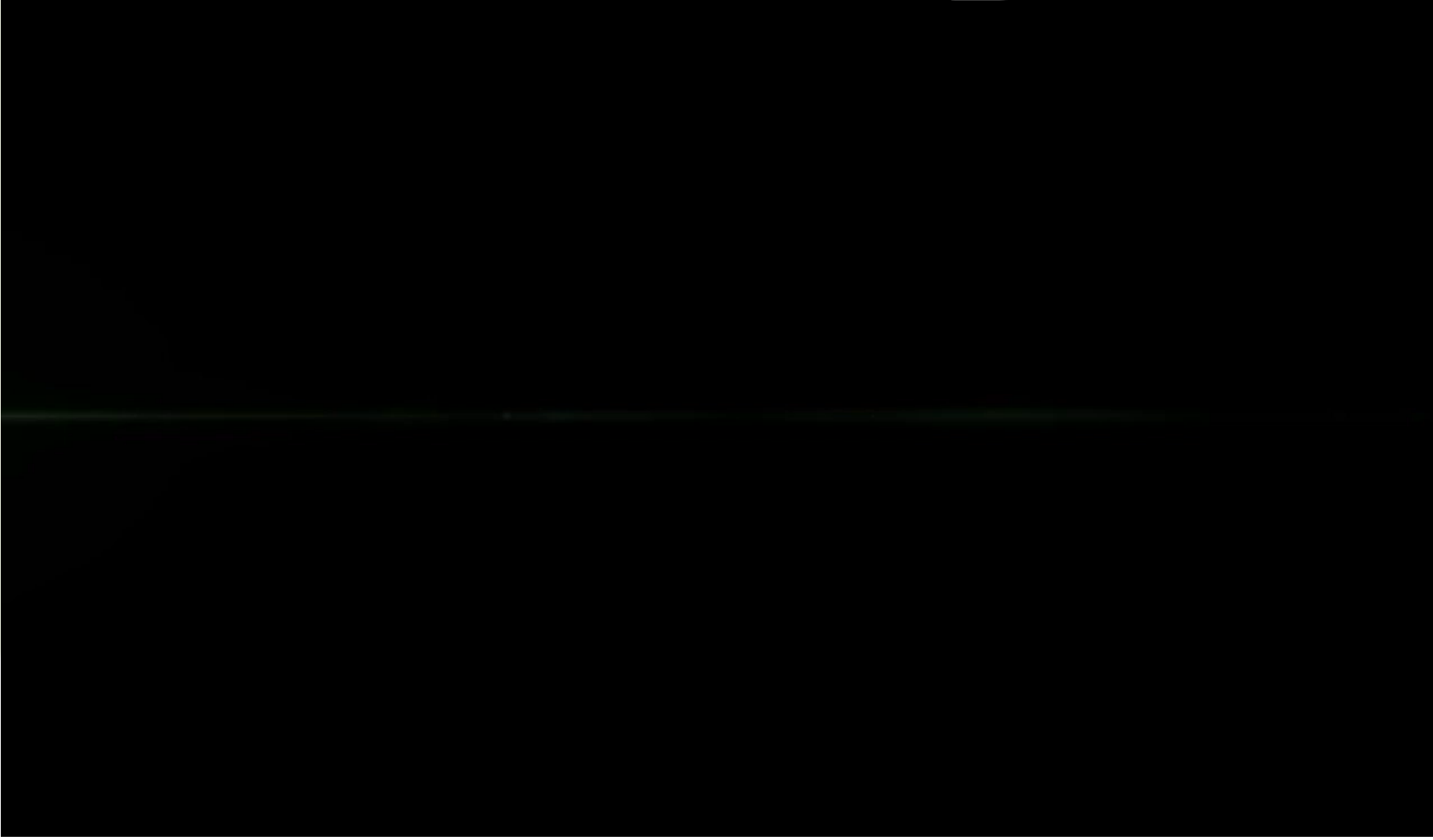
Ubiquitous Device Connectivity and Flexible Deployment
Deploy to meet the needs of the market –Cloud Scale, On-Premise and Embedded options meet the needs of every use case, including flexible communications designed for connecting sensors, devices and equipment across any network topology and an communication scenario.

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