

Global Trends in Smart Metering



Agenda



1. IBM's Smart Metering Position

2. Global Smart Metering Trends

3. Centralized Smart Metering Services

4. Case Study: Ontario

5. Case Study: Texas

The size, depth and breadth of IBM's contributions to smart meter projects confirms IBM as a smart meter leader



IBM has supported smart meter programs representing:

- 80 million installed or planned electric meters globally, supported by IBM
- Over 70 percent of the installed meters in North America
- In excess of 80 utilities, globally

IBM smart metering engagements span the globe

North America:

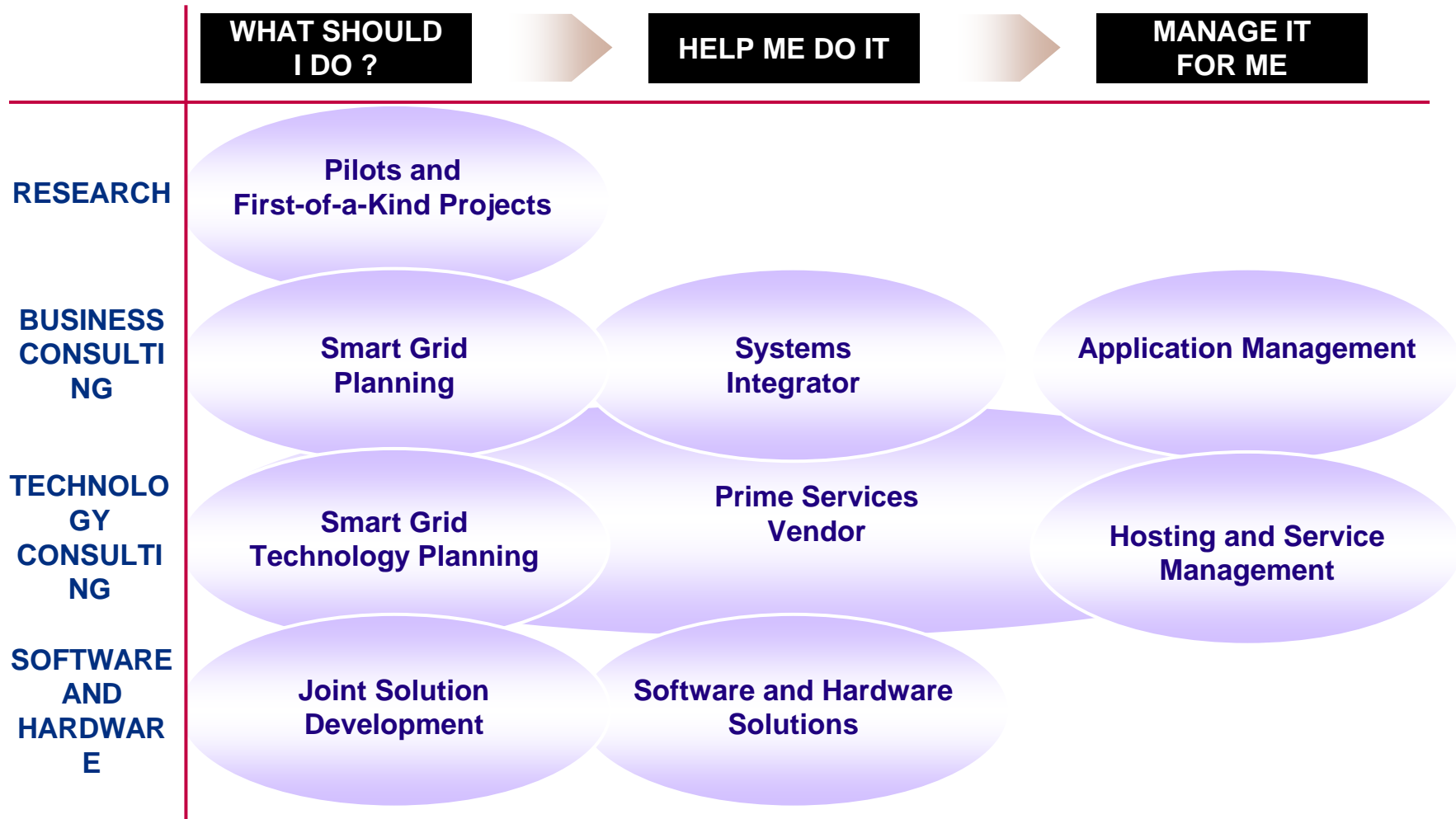
American Electric Power
Austin Energy
BC Hydro
BELCO
CenterPoint Energy
Con Edison
Consumers Energy
CPFL Energia
Entergy
First Energy
Florida Power & Light
Hydro One
Hydro Ottawa
IESO (Ontario)
London Hydro
NV Energy
Oncor
Ontario Energy Board
Pacific Gas & Electric
Pacific Northwest National
Laboratory
PECO
Pepco Holdings Inc
Progress Energy
Smart Meter Texas
Southern California Edison
Toronto Hydro

Europe:

A2A - AEM Torino	Enemalta
A2A - ASM Brescia	Enel
Alliander	ESB Networks
EDF (France)	Göteborg Energi
EDF Energy (UK)	MVV Energie AG
EDP	Nuon
EnBW	Oxxio
Endesa	RWE npower
	Scottish & Southern Energy
	30 Italian distributors

Country Energy
Energy Australia
Western Power

IBM Smart Metering Engagement Models



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1. IBM's Smart Metering Position

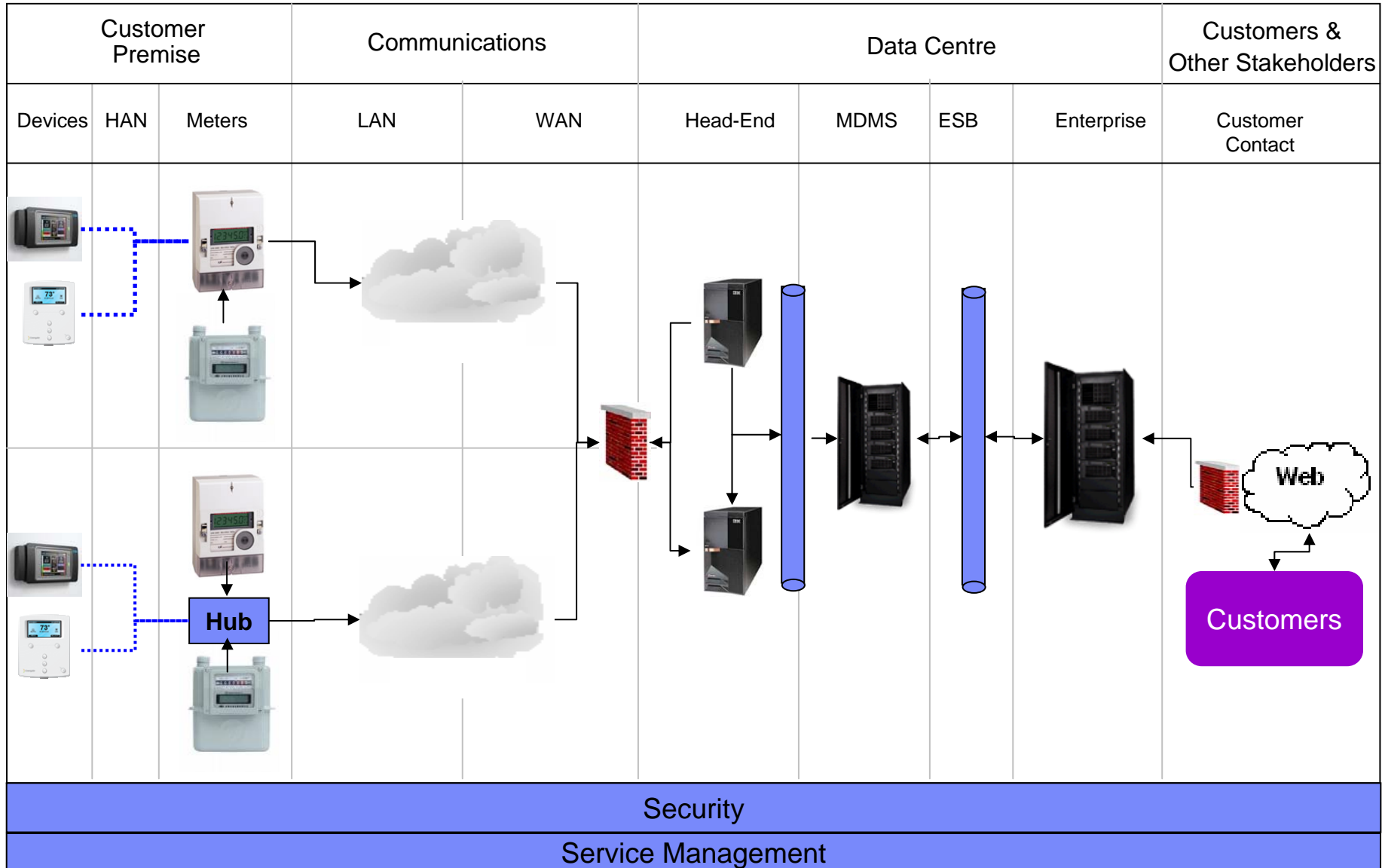
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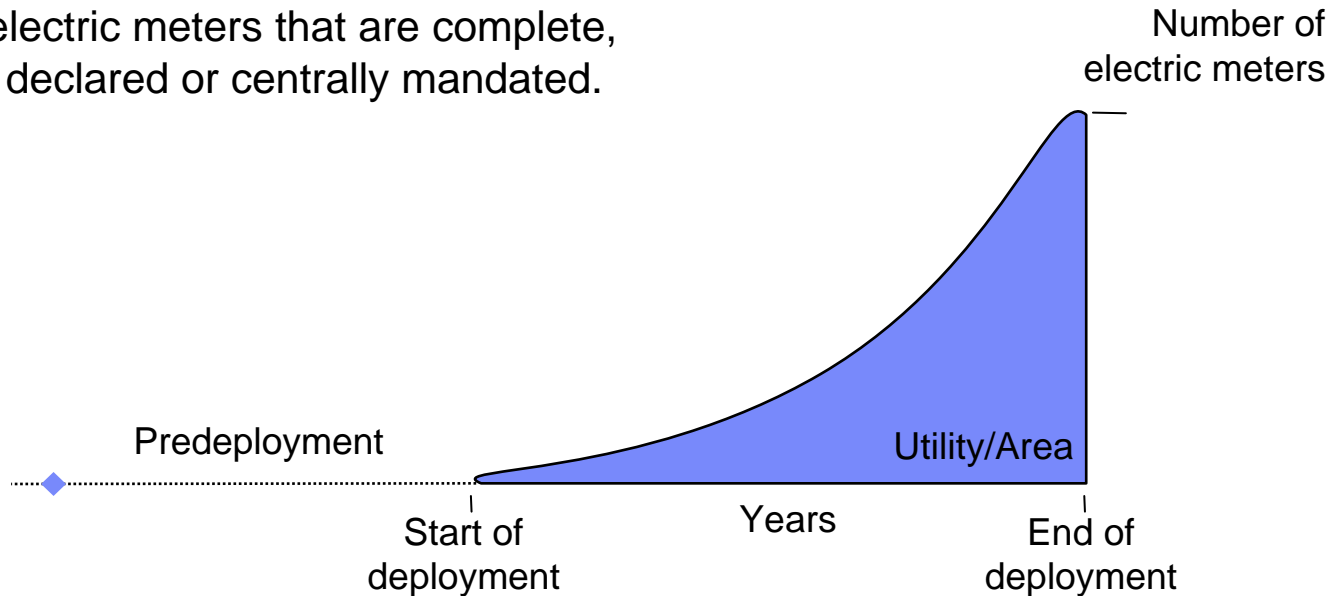
Smart Metering Definition



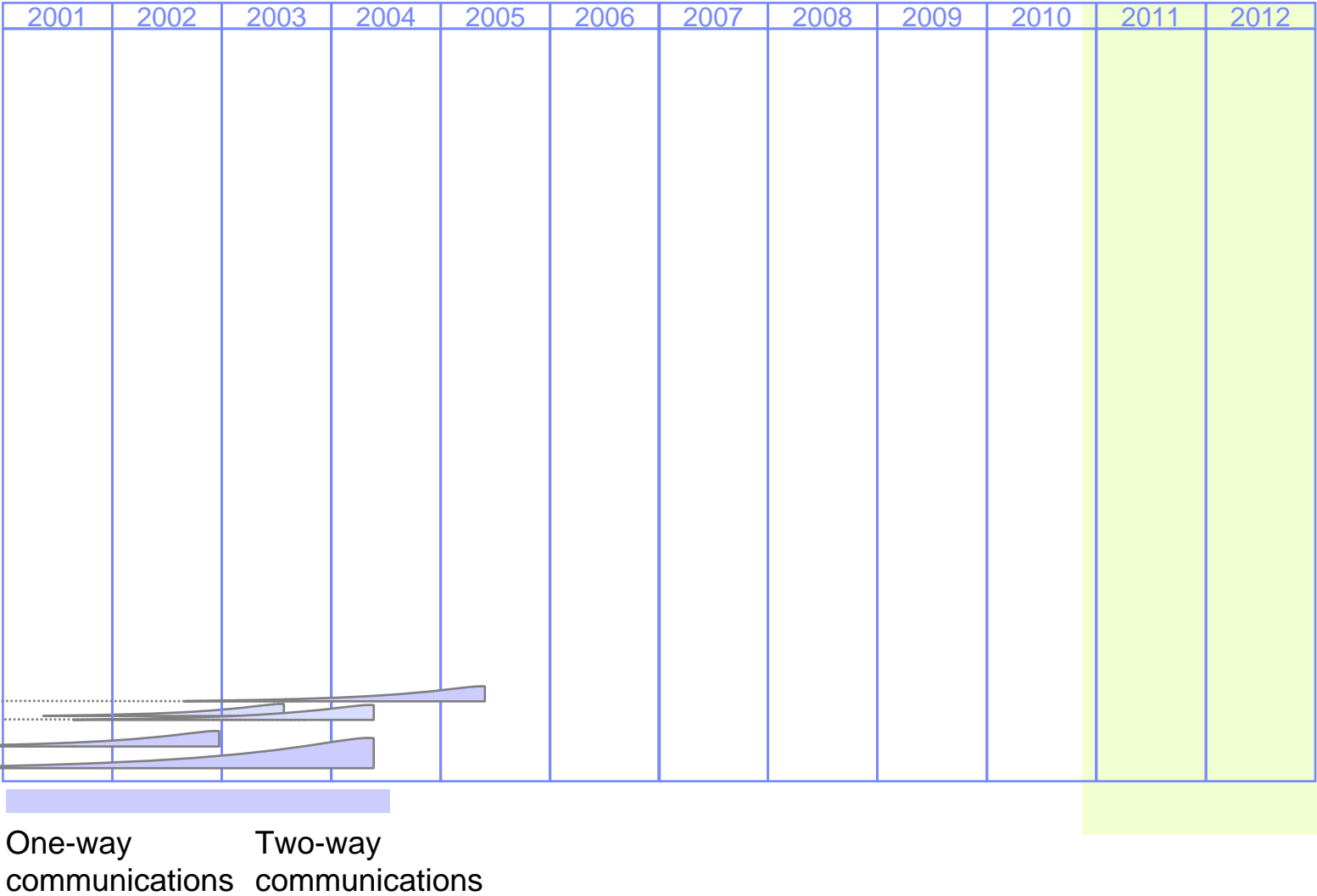
Legend

Inclusion criteria:

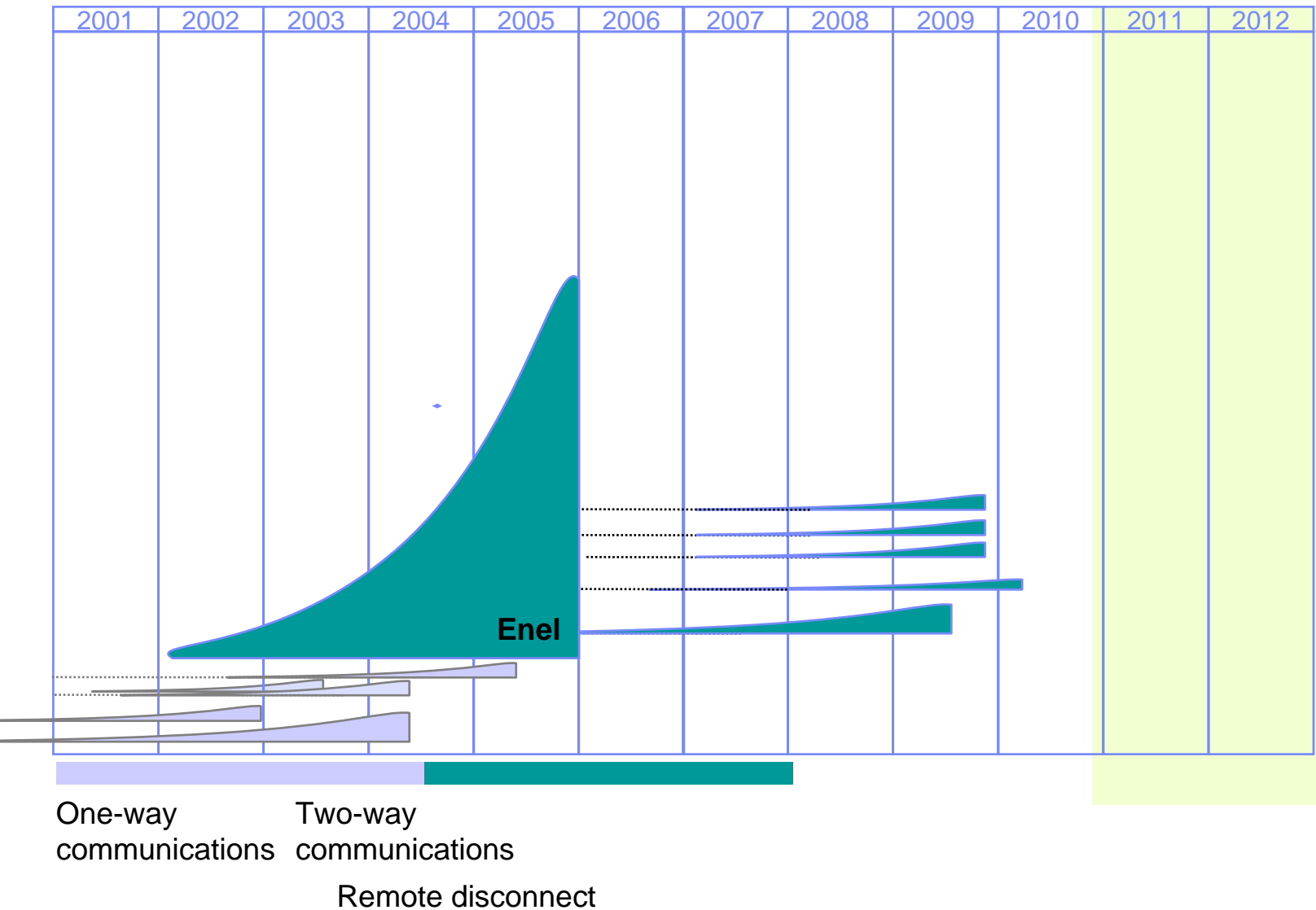
Fixed-network, advanced metering deployments of over 500,000 electric meters that are complete, ongoing, publicly declared or centrally mandated.



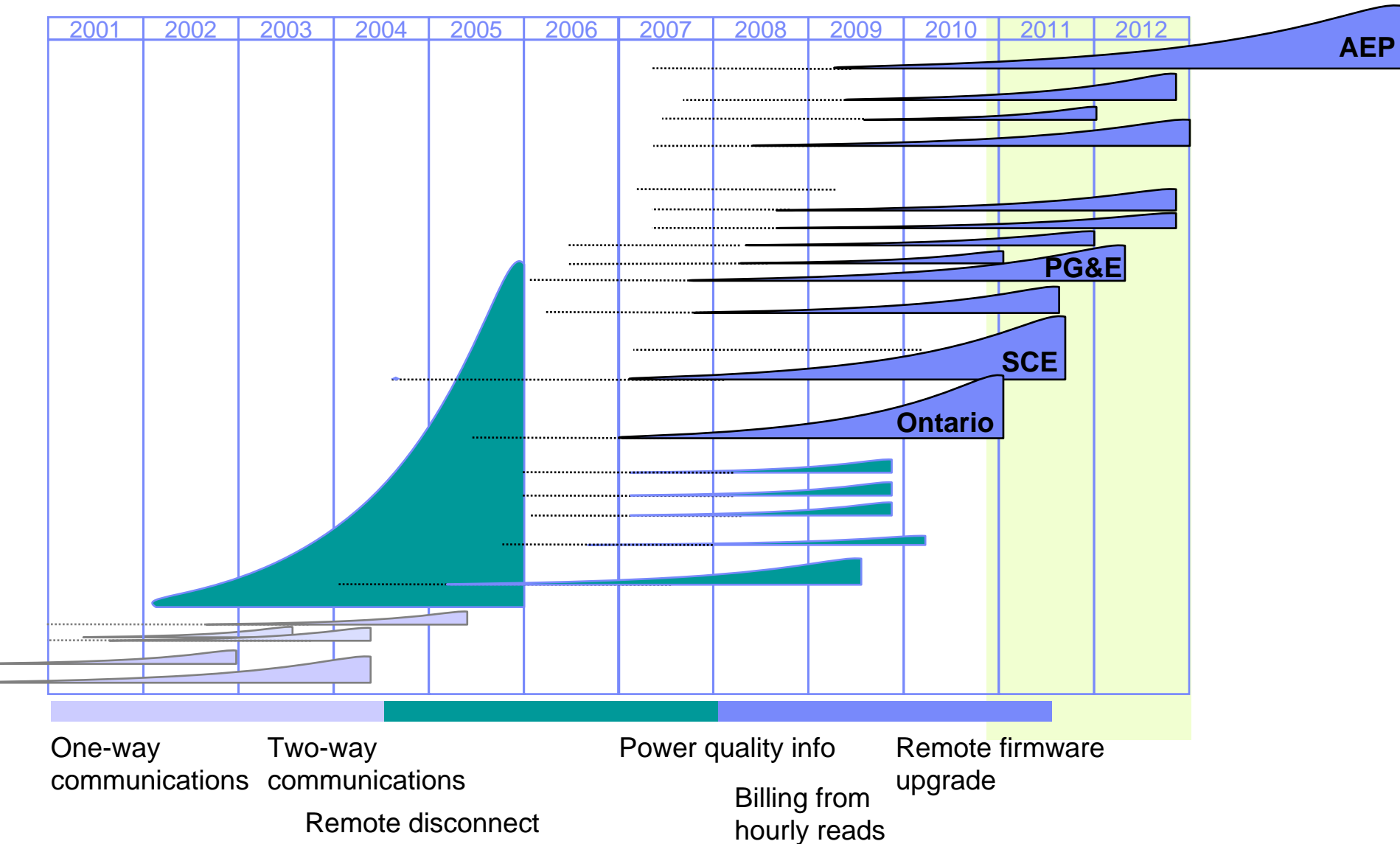
First Generation Smart Metering Begins the US



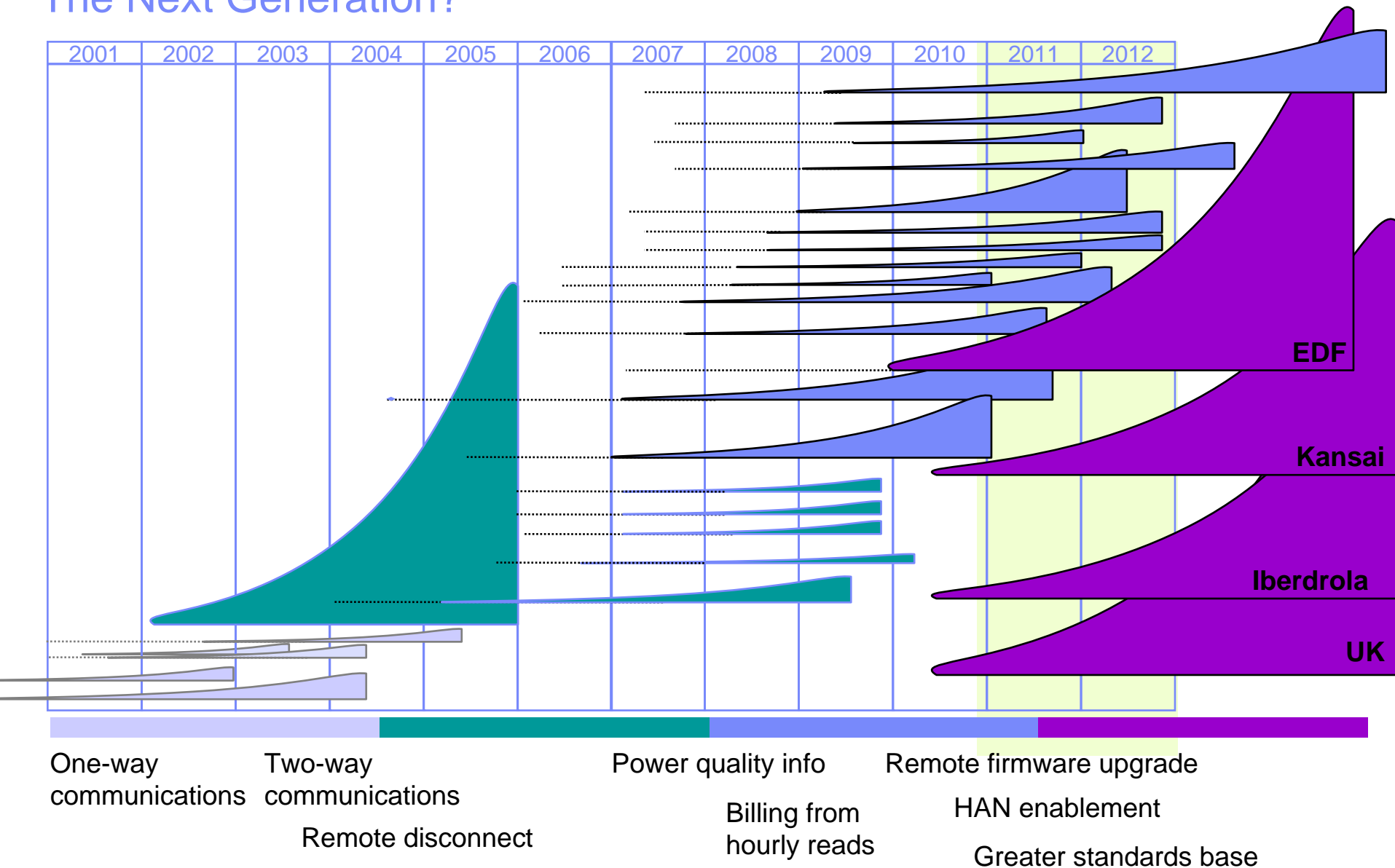
Enel Proves the 2nd Generation



The 3rd Generation in North America



The Next Generation?



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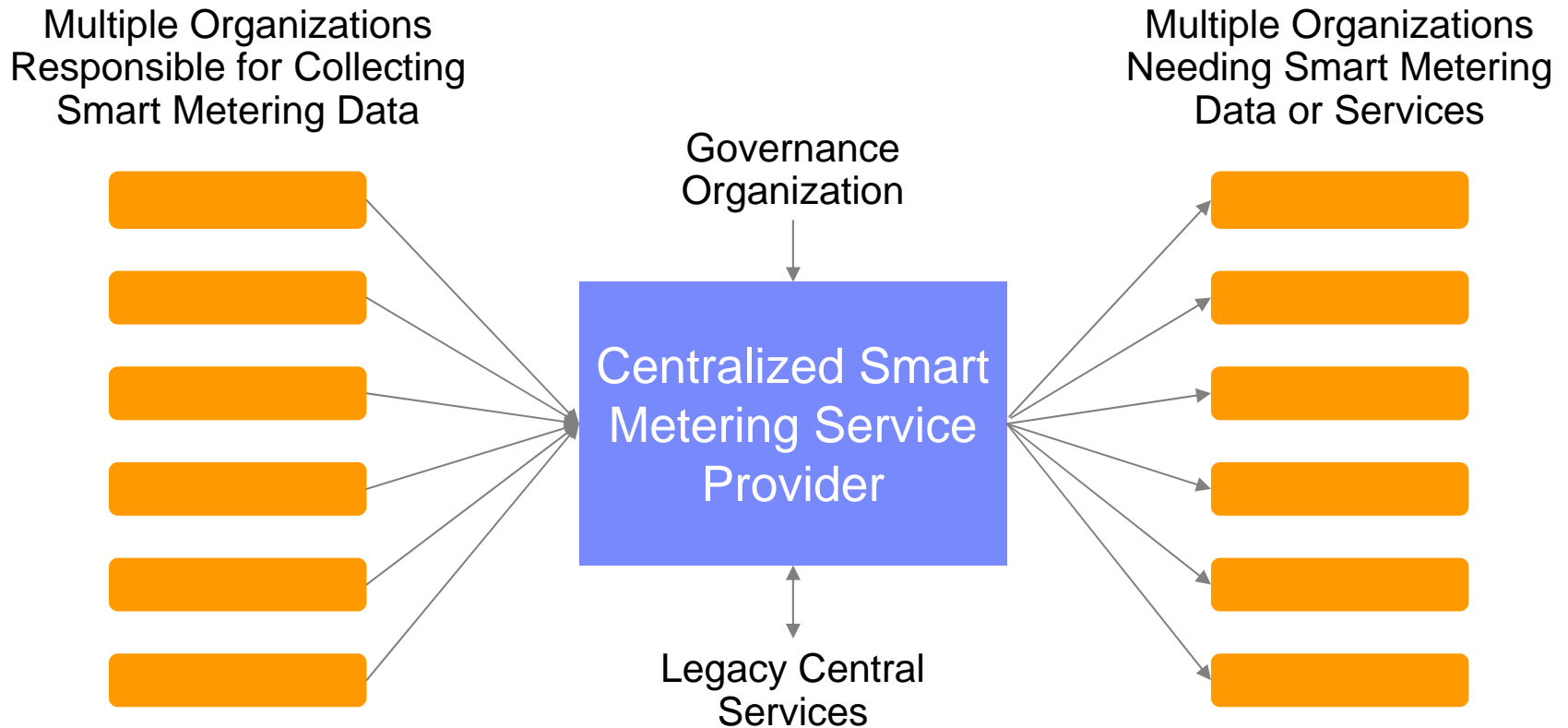
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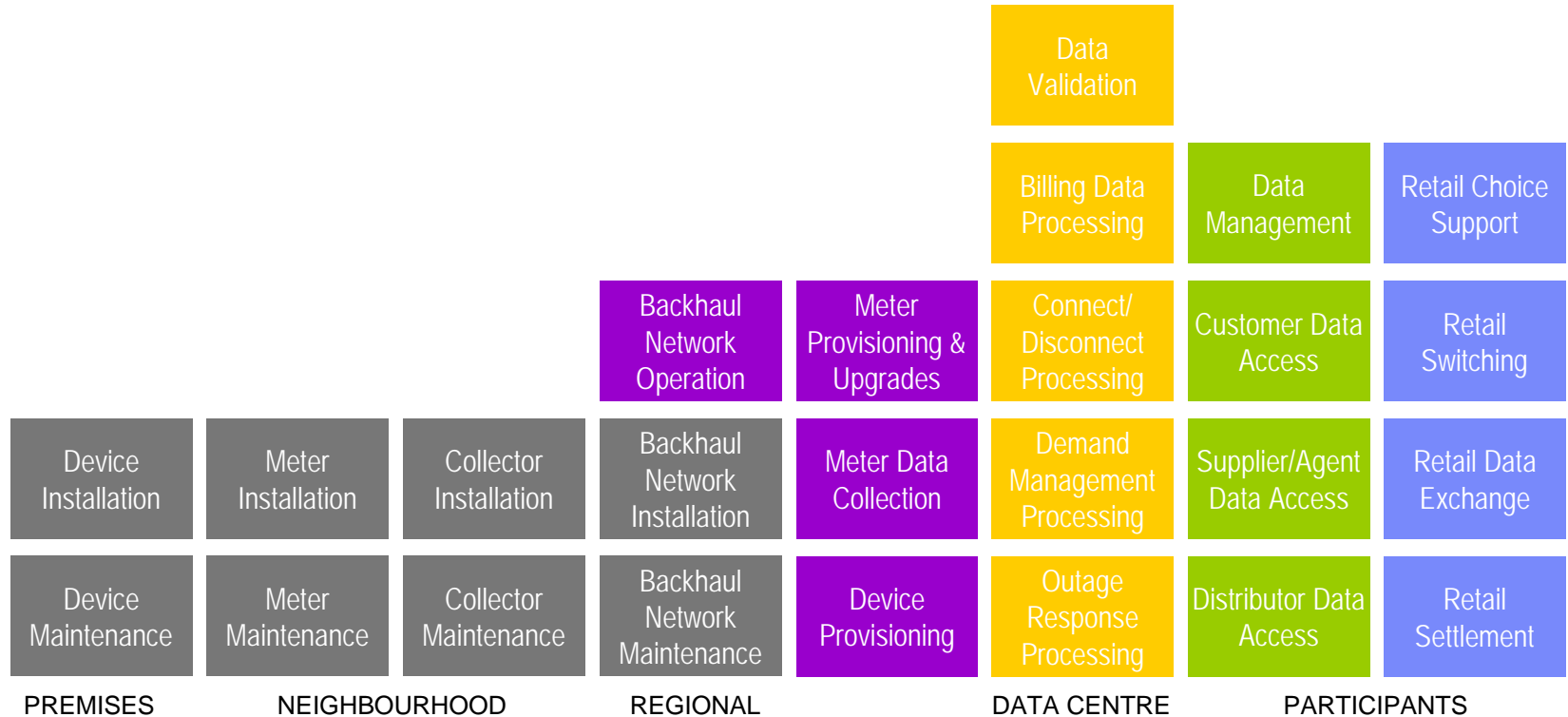
4. Case Study: Ontario

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Context of Centralized Smart Metering Services



Functional Model for Centralized Smart Metering Services



Field Services



Meter Operations



Data and Event Processing



Data and Access Management



Retail Choice Functions

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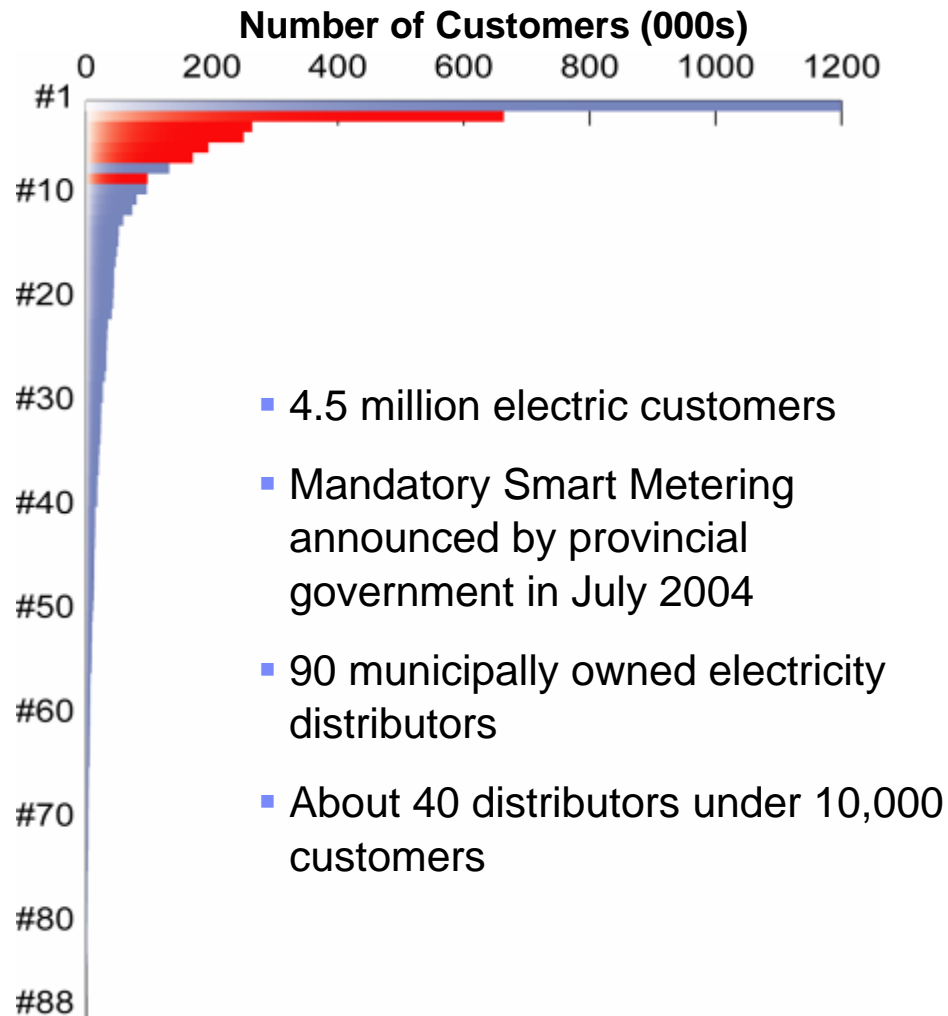
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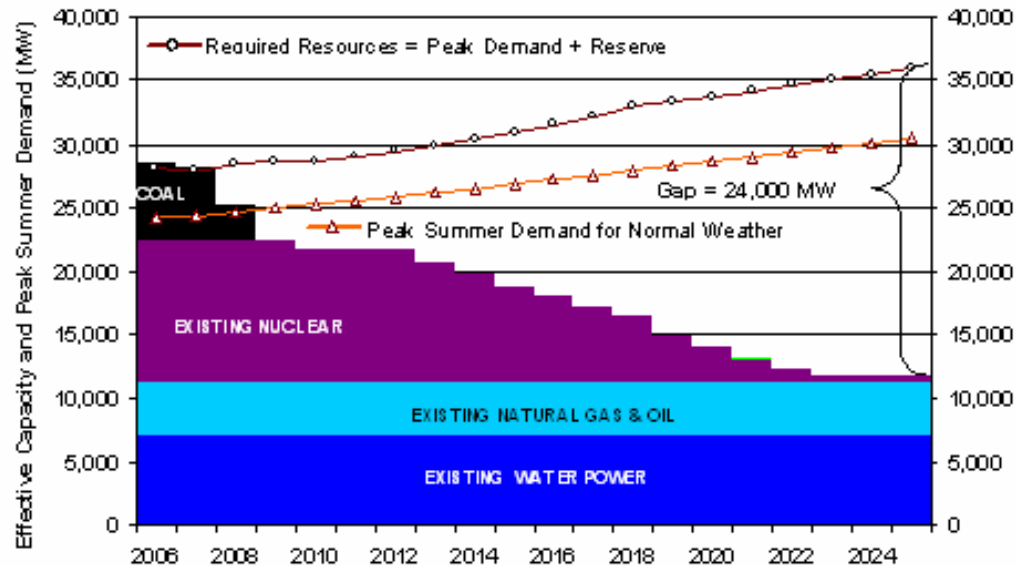
5. Case Study: Texas

Ontario Electricity Structure

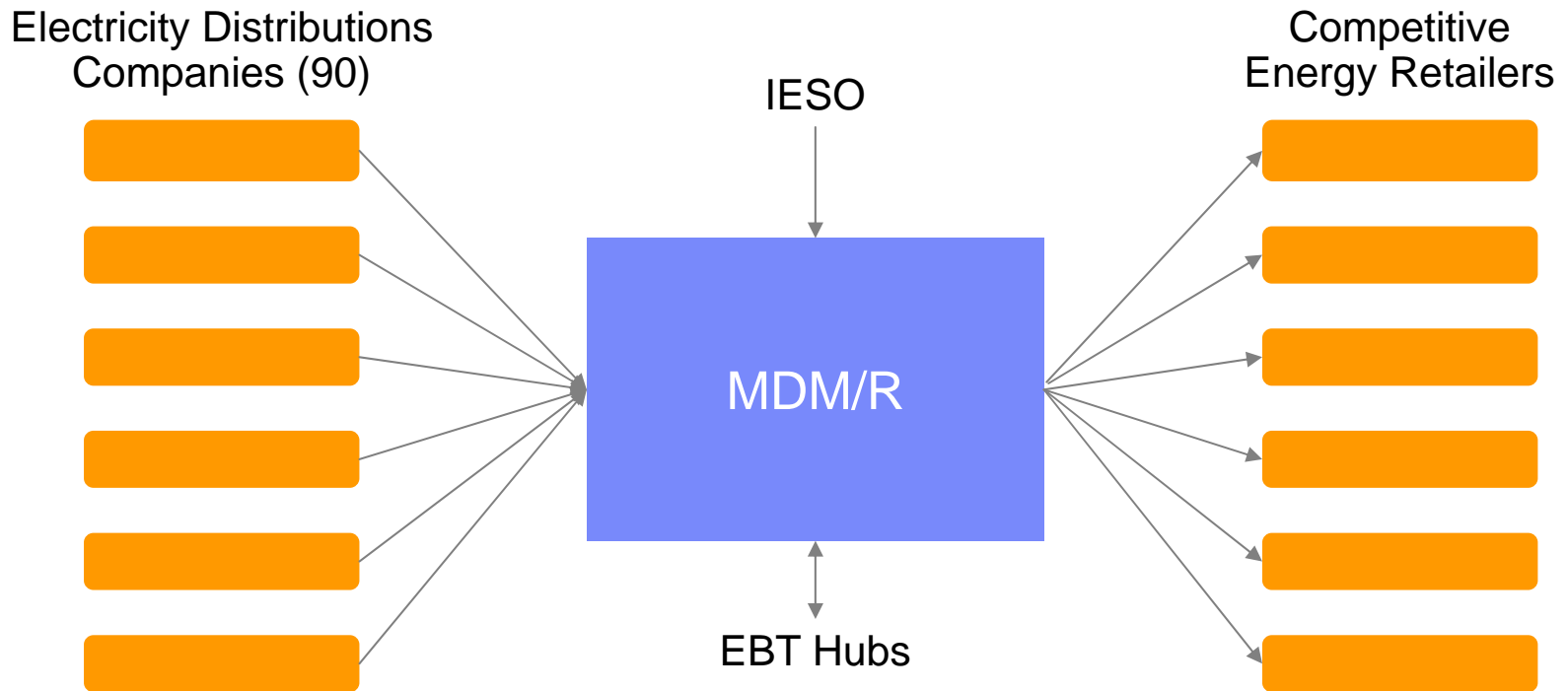


Ontario's electricity supply challenges - Past View

- Looming capacity shortages
 - Aging nuclear plants
 - Lack of generation investment during restructuring
 - Need to secure 25,000 megawatts worth of generating capacity in the next 15 years
 - \$25 to \$40 billion investment
 - Immediate needs in the next few years
- Combined with
 - Import capacity limited to 4,000MW
 - A political decision to retire all coal plants



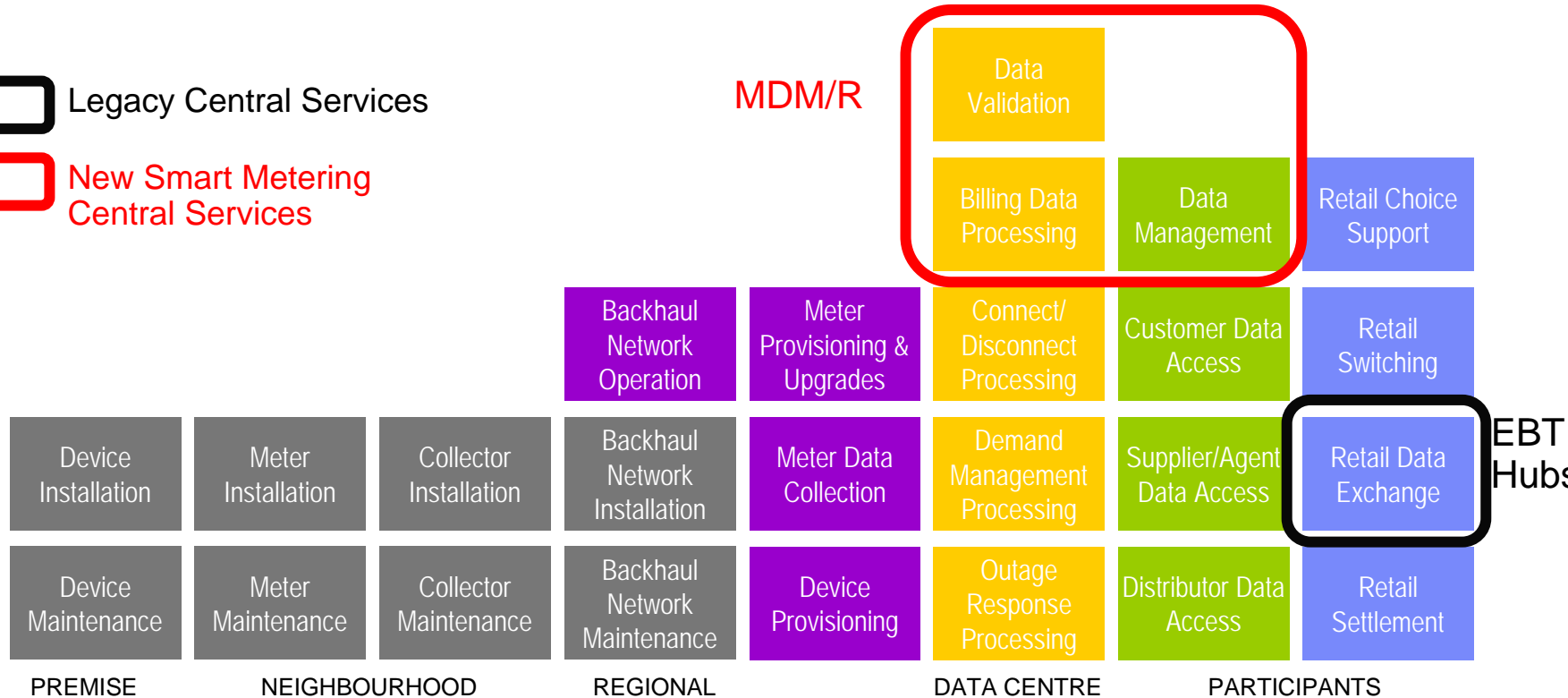
Ontario's MDM/R



Scope of Centralized Services in Ontario, Canada

 Legacy Central Services

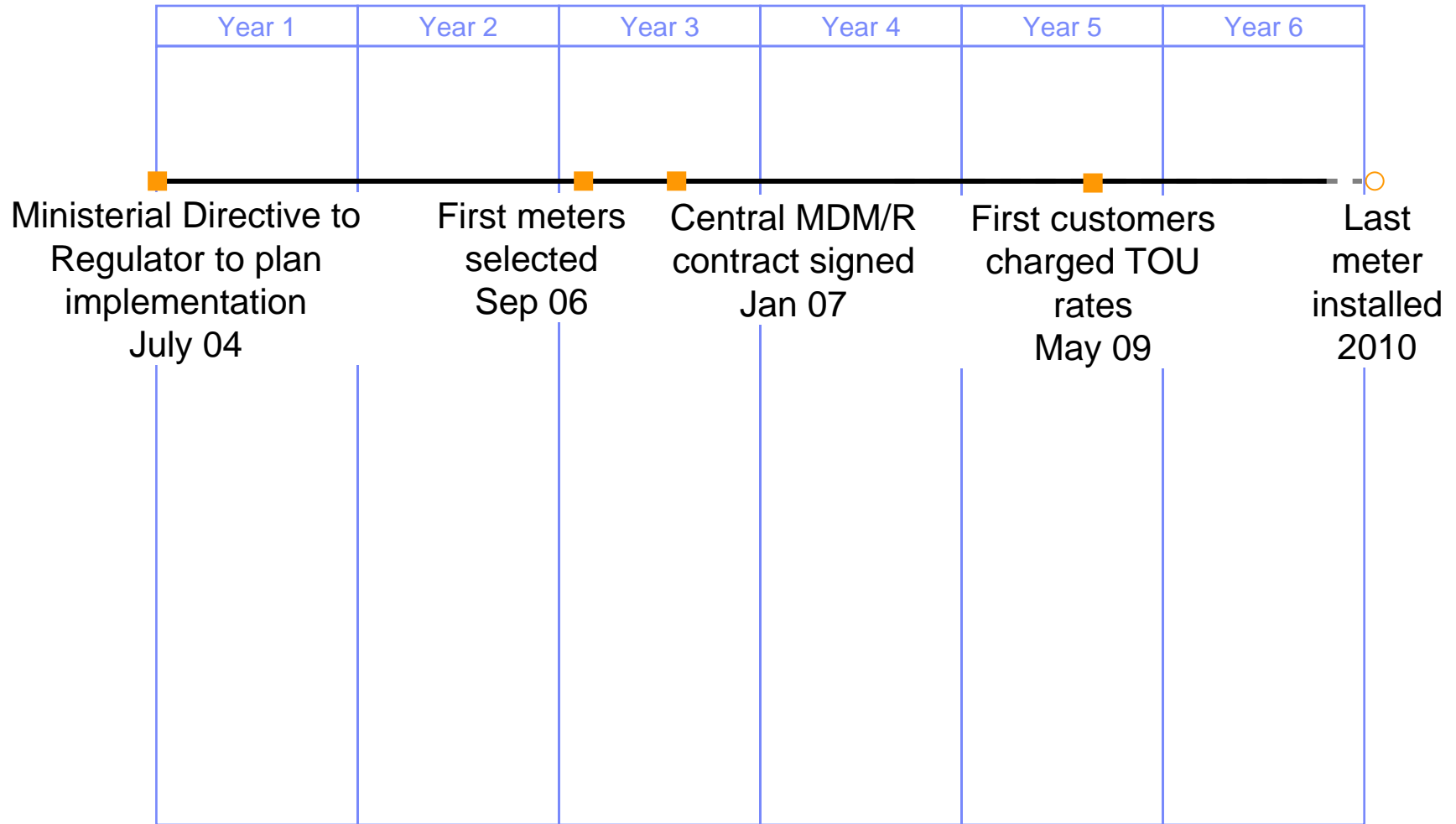
 New Smart Metering Central Services



Ontario's Meter Data Management & Repository

- A central “Smart Metering Entity” for the province
- Assemble, validate and calculate TOU billing determinants
- Hourly interval data from 4.5 million meters
 - 108 million meter intervals a day
 - 85 billion records
- Service over 90 distributors, plus retailers and energy service providers
- Across multiple AMI technologies:
 - Sensus, Elster, Trilliant, Tantalus to start
- Over a dozen CIS products

Ontario Smart Metering Timelines



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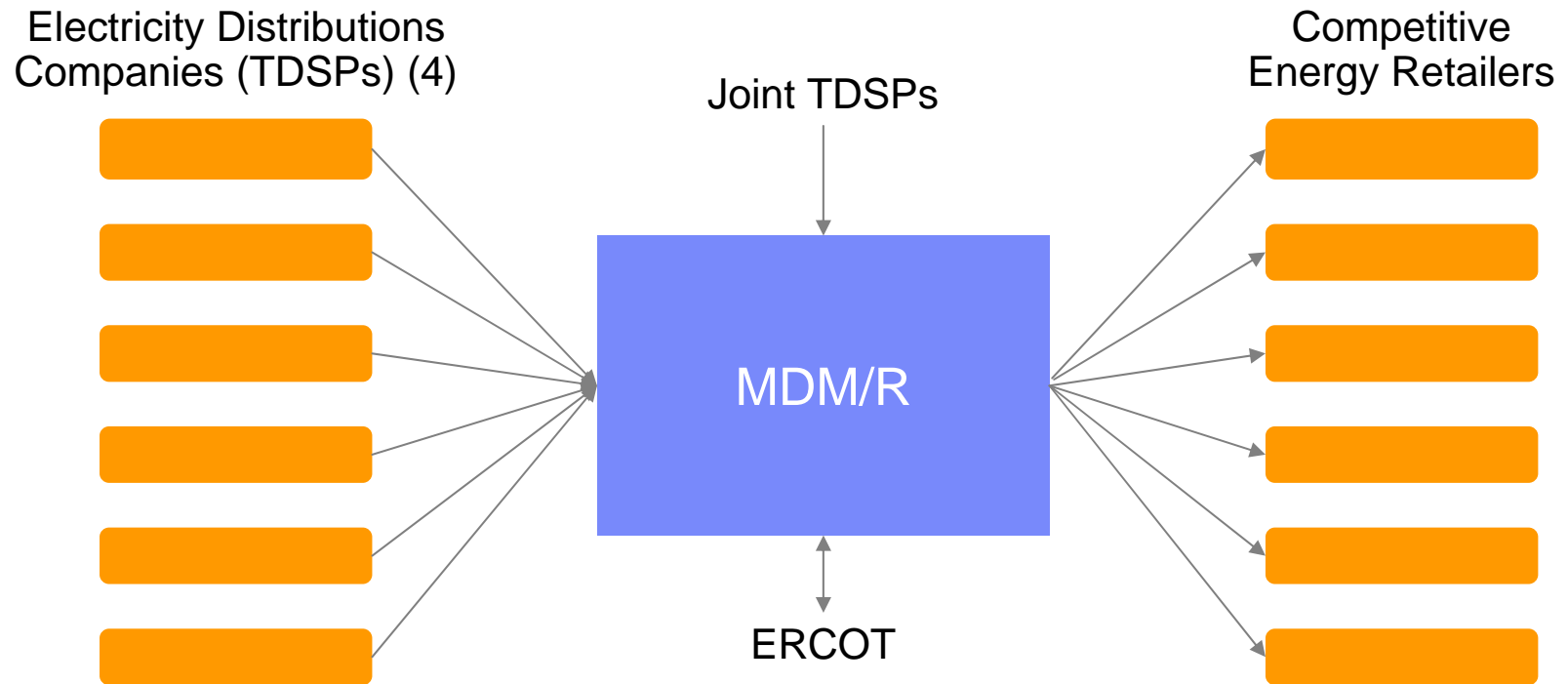
5. Case Study: Texas

Texas


**Quick Facts:**

- 7.1 million electric customers
- Electric smart metering only
- 4 major distribution companies

Smart Meter Texas

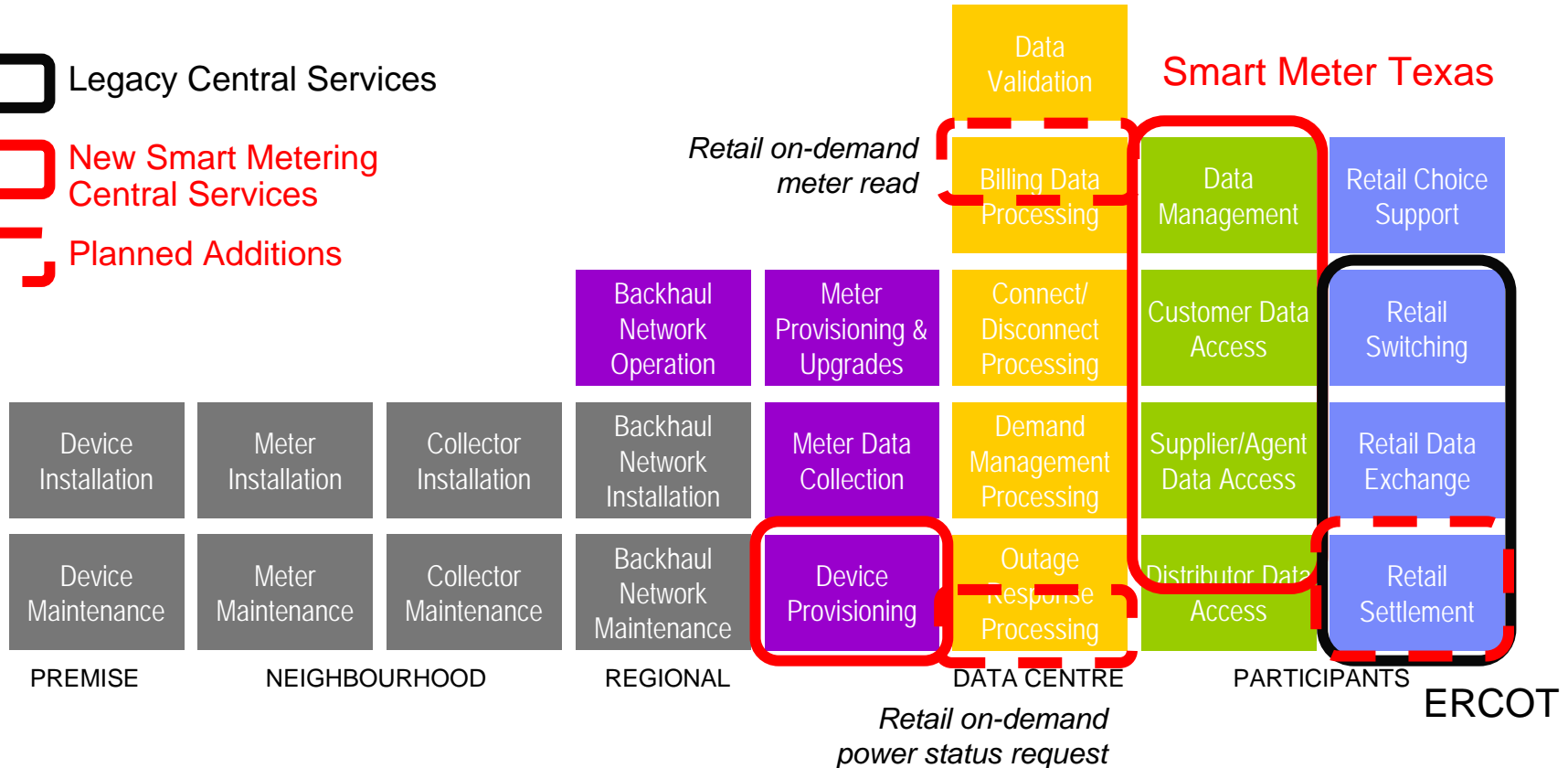


Scope of Centralized Services in Texas, USA

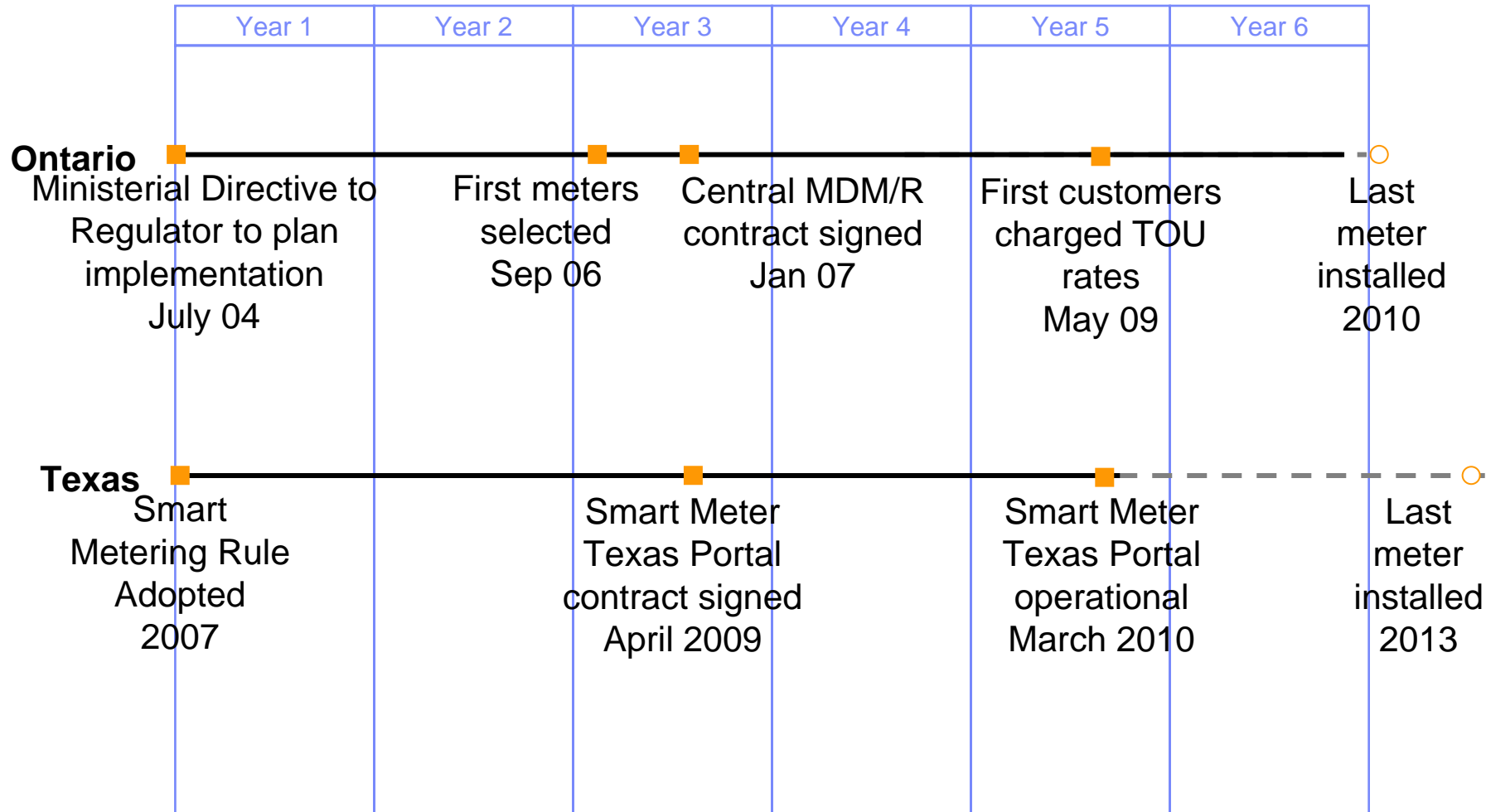
 Legacy Central Services

 New Smart Metering Central Services

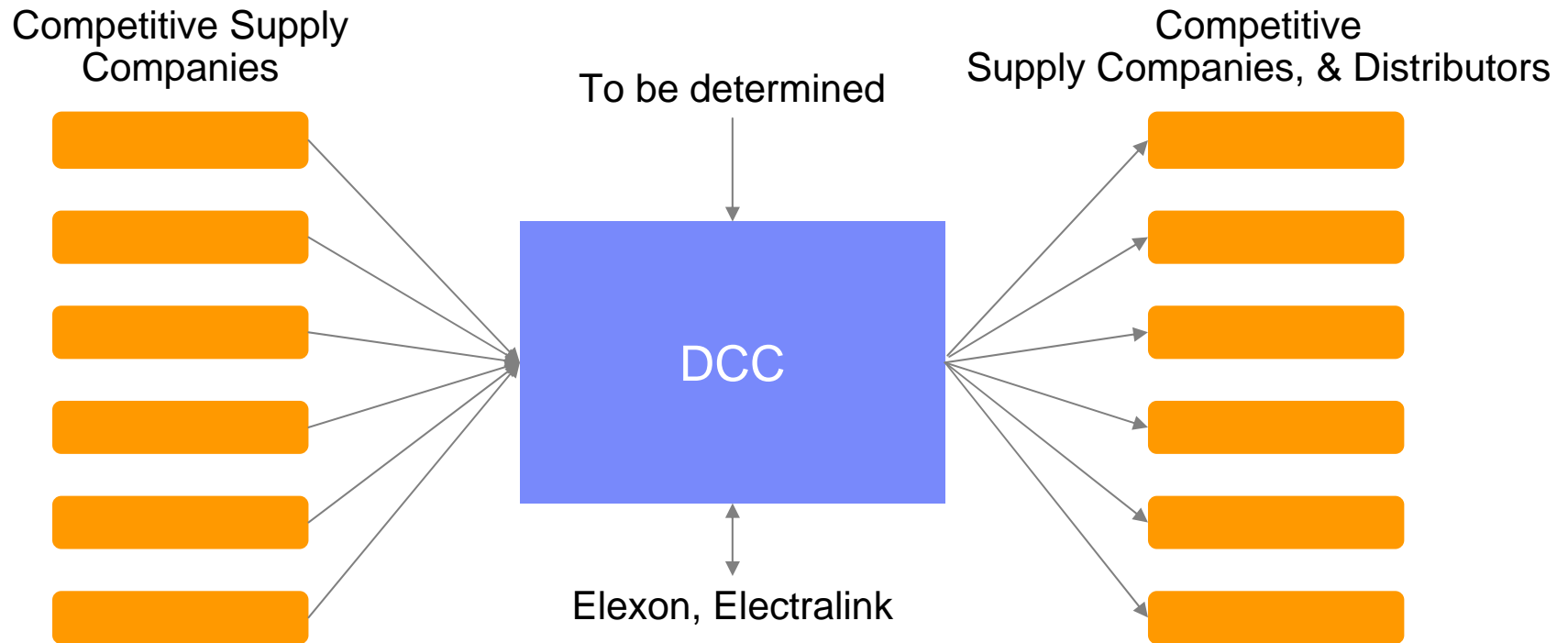
 Planned Additions



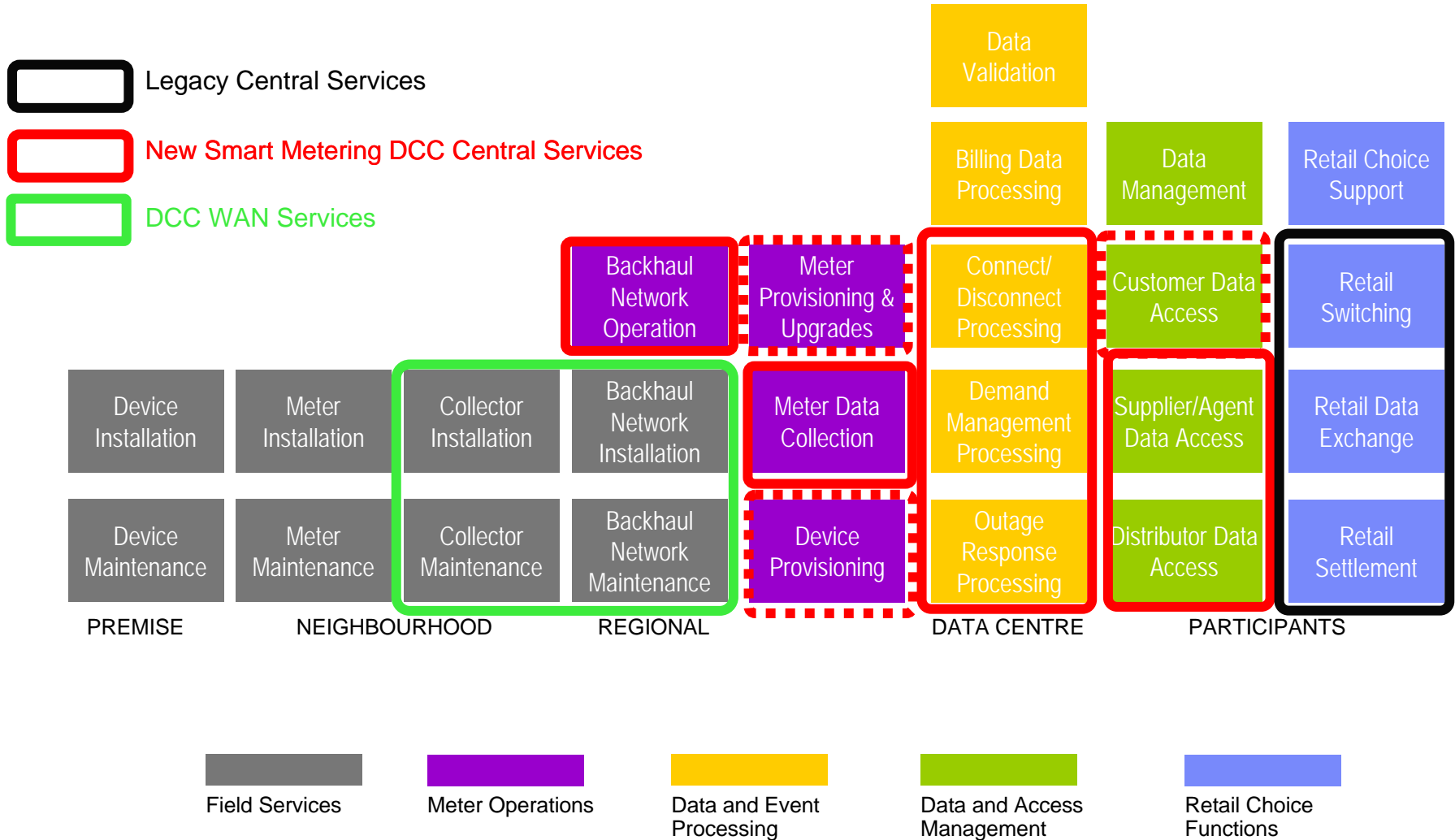
Comparative Smart Metering Project Timelines

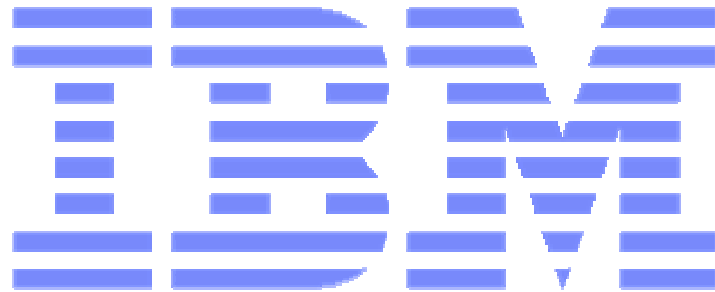


Plans for the United Kingdom



Planned UK DCC Data Services and Options



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