Duo of Smart Meters and Artificial Intelligence to Shape the Future of Utility Industry

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- Electrical grids in the advanced economies are moving towards digitalization which has enabled consumers to actively participate in the energy market.
- In terms of installed base of smart meters in states, California, Texas, and Florida are the leading states that account for an installed base of around 32 million units of smart meters.
- Electric utilities have invested a lot in the deployment of smart meters to monitor the energy usage habits of their customers.

Electrical grids in the advanced economies are moving towards digitalization which has enabled consumers to actively participate in the energy market. As the grids move towards digitalization, they install smart meters that generate actionable data around the resource managed by utilities. So, in order to leverage the data that is collected by smart meters electrical utilities are tapping into the latest computing technologies, for instance artificial intelligence (AI) and block chain. The U.S. is one of the top countries in the world that have demonstrated strong inclination towards the deployment of smart metering technology and has a significant potential to make use of artificial intelligence in order to leverage the data collected by these meters.

Currently, 75% of the households in the U.S. have smart meters installed that account for nearly 115 million smart meters installed nationwide. The U.S. is pushing to reach 100% deployment of smart meters as early as 2030.

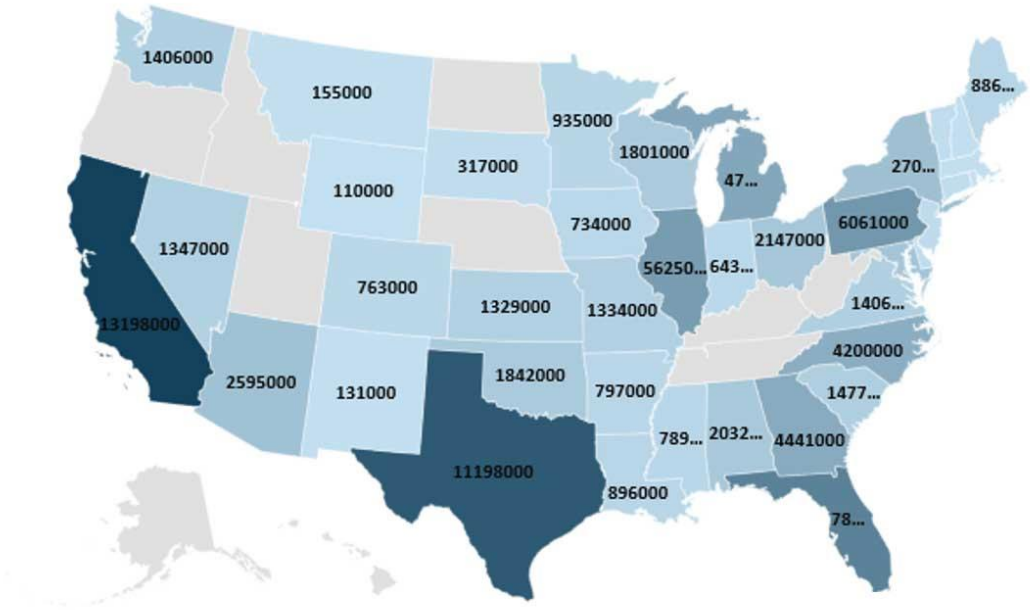

Figure 1: Smart Meter Installation Hotspots in the US.
Source: Power Technology Research

States that are Spearheading the Smart Meter Deployment

In terms of installed base of smart meters in states, California, Texas, and Florida are the leading states that account for an installed base of around 32 million units of smart meters.

California

Nearly 14% of the total smart meter deployments in the US are in the state of California with utilities like PG&E (Pacific Gas and Electric), Pacific Power, SDG&E (San Diego Gas & Electric), SCE (Southern California Edison), AEP Texas, CenterPoint, Entergy leading in terms of deployment of smart meters in the state.

Texas

California is followed by Texas in terms of deployment of smart meters in the US accounting for nearly 13 million units. AEP Texas, CenterPoint Energy, Entergy, Oncor, and TNMP are the utilities in Texas that deployed smart meters at all their connections. Northern States Power was expected to begin installation of smart meters in 2021 whereas Southwestern Public Service Territory is expected to initiate that in 2023.

Florida

Florida is one of the states that have recently started deployment of smart metering technology. Around 8 million connections have been shifted to smart meters throughout the state with utilities like Duke Energy, FPL, and Tampa Electric, have all the consumers covered as far installation of smart meters is concerned.

State	Smart Meter Installation (State level)	Major Utilities	Smart Meter Installation (By Utilities)
California	~13.1 Million	PG&E	~5 Million
		Pacific Power	~0.4 Million
		SDG&E	~1.4 Million
		SCE	~5 Million
Texas	~11.2 Million	AEP Texas	~1 Million
		CenterPoint	~2.5 Million
		Entergy	~2 Million
		Oncor	~3.6 Million
		TNMP	~0.25 Million
		Southwestern Public Service territory & Northern States Power (by 2023)	~0.42 Million
Florida	~7.8 Million	Duke Energy	~1.7 Million
		FPL	~5.5 Million
		Tampa Electric	~0.8 Million

Figure 2: States Leading in Terms of Installation of Smart Meters in the US.
Source: Power Technology Research

AI to Leverage Smart Meters' Data

AI has a significant role to play in the utility industry that will shape the future of several energy market participants including the prosumers and the utilities. Smart meters coupled with AI platforms provide valuable insights to both the prosumers of electricity and utilities that use those insights to enhance their operational efficiency while increasing financial gains during their participation in the open energy market. Utilities like Consolidated Edison, Eversource, NV Energy, Pacific Power and Rock Mountain Power have deployed AI platforms in order to extract insights from the data logged by smart meters of their consumers aimed at enhancing their customer service and operations.

Consolidated Edison, in order to improve their customer service and operations adopted analytics platform of C3.Ai for 5 million smart meters installed across all service zones. Eversource has also deployed the same platform for residential and commercial customers whereas the utility and the consumers are expected to rear an economic benefit worth USD 150 million per annum from the deployment. Similarly, NV Energy and Pacific Power have partnered with Bidgely in order to make use of the data logged by the smart meters.

Looking Ahead

Smart meter technology has gained in traction in the United States during the last decade. Electric utilities have invested a lot in the deployment of smart meters to monitor the energy usage habits of their customers. Several utilities, notably AEP, Ameren, DLC, Eversource Energy, Exelon, MGE, NV Energy, NYPA, Pacific Power MUD, and SoCalGas, have used advanced computing techniques like AI to provide relevant insights from smart meter data in order to help or manage consumer energy consumption efficiently. However, the number of utilities leveraging AI techniques to deliver effective results is still lower than the number of utilities that have installed smart metering technology across their service zone. With the growing number of smart meter connections across the country, it is expected that electric utilities would employ AI platforms to maximize the gains from the smart metering technology.

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