

# BEST PRACTICES BY DIMENSIONS

## Customer Empowerment and Satisfaction

- UKPN
- WPD
- e-distribuzione
- SP Energy Networks
- Northern Powergrid
- TalPower
- Westnetz
- DEWA
- Enedis
- ENWL
- SSEN
- SP Group
- Tata power-DDL
- Ausnet
- KEPCO
- Jemena
- TNB
- Kansai
- Light

## Monitoring & Control

- UKPN
- PG&E
- WPD
- CitiPower
- SDGE
- SCE
- e-distribuzione
- ComEd
- Enedis
- ENWL
- FPL
- APS
- CLP
- PEPCO
- Tata power-DDL
- BC Hydro
- Chubu
- Fluvius
- Duke Energy
- Radius
- Helen
- Meralco
- ESB
- Light
- Edenor
- SP Energy Networks
- Tata power-DDL
- Shenzhen Power
- State Grid Sichuan
- CenterPoint Energy

## Security

- UKPN
- PG&E
- WPD
- ConEd
- CitiPower
- SDGE
- SCE
- e-distribuzione
- SP Energy Networks
- Northern Powergrid
- TalPower
- ComEd
- Westnetz
- FPL
- LADWP
- APS
- SSEN
- CenterPoint Energy
- Hydro Ottawa
- PEPCO
- Tata power-DDL
- BGE
- Toronto Hydro
- BC Hydro
- Eversource
- PSE
- Dominion Energy
- EVN Hanoi
- NIEN
- Tata power Ltd

## Data Analytics

- PG&E
- CitiPower
- SDGE
- SCE
- e-distribuzione
- ComEd
- FPL
- State Grid Beijing
- Jemena
- BC Hydro
- Vattenfall
- Duke Energy

## Supply Reliability

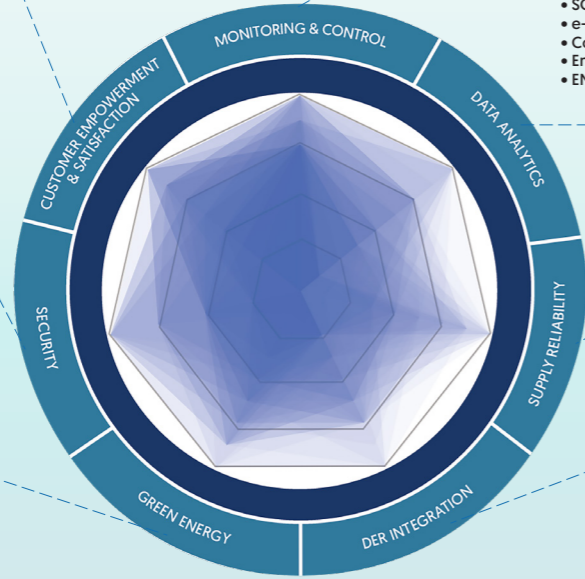
- CitiPower
- DEWA
- CLP
- SP Group
- KEPCO
- Helen
- HK Electric
- CEM
- Rosseti

## Green Energy

- UKPN
- PG&E
- WPD
- ConEd
- SDGE
- SCE
- Enedis
- LADWP
- CLP
- Hydro Ottawa
- i-DE
- EDP
- Eversource
- Western Power
- Vector
- ACEA

## DER Integration

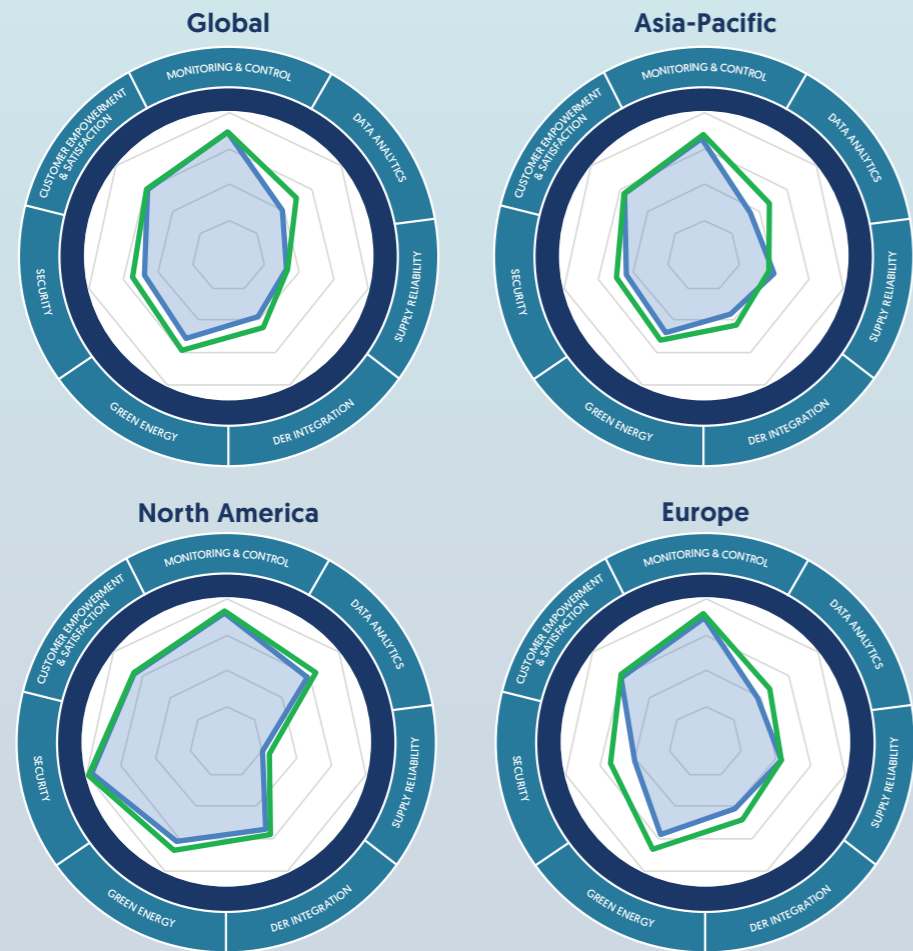
- UKPN
- PG&E
- WPD
- ConEd
- SDGE
- SCE
- SP Energy Networks
- Ausnet
- Eversource



# Is your Grid Smarter?

Benchmarking Results 2020

## SMART GRID PROGRESS (2019-2020)



■ Average score 2020  
■ Average score 2019



# KEY FINDINGS

**NORTH AMERICA**  
continues to lead due to early adoption of smart grid development

**EUROPE**  
improved the most relative to the rest of the world

**ASIA-PACIFIC**  
made significant improvements in Data Analytics

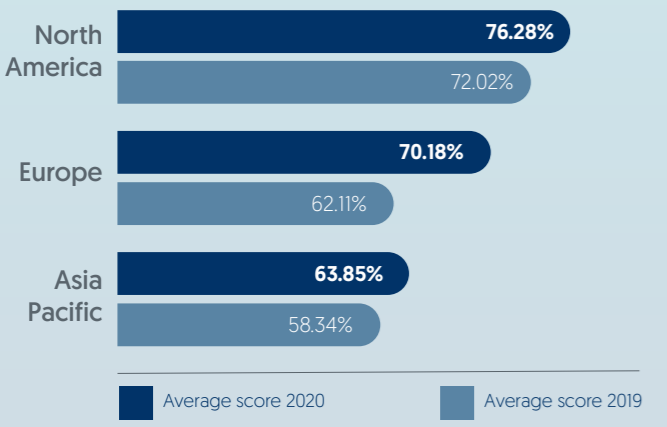
## SMART GRID INDEX

The Smart Grid Index (SGI) measures the smartness of electricity grids globally, in seven key dimensions. The benchmarking also identifies best practices to build smarter grids that deliver better value to customers.

## INCREASED COVERAGE IN 2020



## AVERAGE SCORE BY REGION



## MAJOR PROGRESS



## 7 DIMENSIONS OF A SMART GRID

- MONITORING & CONTROL**
  - SCADA
  - DMS/ADMS
- DATA ANALYTICS**
  - Smart Meter Coverage
  - Data Analytics Application
- SUPPLY RELIABILITY**
  - SAIDI
  - SAIFI
- DER INTEGRATION**
  - Management of DER Integration
  - Grid Scale Energy Storage
- GREEN ENERGY**
  - Renewable Energy Penetration
  - EV Facilitation
- SECURITY**
  - IT Cyber Security
  - OT Cyber Security
- CUSTOMER EMPOWERMENT & SATISFACTION**
  - Real-Time Data to Customers
  - Customer Satisfaction Feedback

# BENCHMARKING RESULTS 2020

Utility	Country/Market	Score	+/-	Best Practices
UKPN	GBR	94.6	▲ 5.4%	Smart Grid Index, Security, DER Integration, Green Energy
PG&E	USA	92.9	— 0.0%	Smart Grid Index, Security, DER Integration, Green Energy
WPD	GBR	91.1	▲ 23.2%	Smart Grid Index, Security, DER Integration, Green Energy
ConEd	USA	89.3	▲ 8.9%	Smart Grid Index, Security, DER Integration, Green Energy
CitiPower	AUS	87.5	▲ 7.1%	Smart Grid Index, Security, DER Integration, Green Energy
SDGE	USA	87.5	▲ 1.8%	Smart Grid Index, Security, DER Integration, Green Energy
SCE	USA	85.7	▼ -1.8%	Smart Grid Index, Security, DER Integration, Green Energy
e-distribuzione	ITA	83.9	— 0.0%	Smart Grid Index, Security, DER Integration, Green Energy
SP Energy Networks	GBR	83.9	▲ 21.4%	Smart Grid Index, Security, DER Integration, Green Energy
Northern Powergrid	GBR	82.1	▲ 10.7%	Smart Grid Index, Security, DER Integration, Green Energy
TaiPower	TWN	82.1	▲ 17.9%	Smart Grid Index, Security, DER Integration, Green Energy
ComEd	USA	80.4	▲ 1.8%	Smart Grid Index, Security, DER Integration, Green Energy
Stedin	NLD	80.4	▲ 12.5%	Smart Grid Index, Security, DER Integration, Green Energy
Westnetz	DEU	80.4	▲ 3.6%	Smart Grid Index, Security, DER Integration, Green Energy
DEWA	ARE	78.6	▲ 1.8%	Smart Grid Index, Security, DER Integration, Green Energy
Enedis	FRA	78.6	▲ 3.6%	Smart Grid Index, Security, DER Integration, Green Energy
ENWL	GBR	78.6	▲ 8.9%	Smart Grid Index, Security, DER Integration, Green Energy
FPL	USA	78.6	▲ 1.8%	Smart Grid Index, Security, DER Integration, Green Energy
LADWP	USA	78.6	▲ 1.8%	Smart Grid Index, Security, DER Integration, Green Energy
APS	USA	76.8	▲ 5.4%	Smart Grid Index, Security, DER Integration, Green Energy
SSEN	GBR	76.8	▲ 10.7%	Smart Grid Index, Security, DER Integration, Green Energy
CenterPoint Energy	USA	75.0	▲ 3.6%	Smart Grid Index, Security, DER Integration, Green Energy
CLP	HKG	75.0	▲ 5.4%	Smart Grid Index, Security, DER Integration, Green Energy
Hydro Ottawa	CAN	75.0	▲ 5.4%	Smart Grid Index, Security, DER Integration, Green Energy
i-DE	ESP	75.0	▲ 3.6%	Smart Grid Index, Security, DER Integration, Green Energy
PEPCO	USA	75.0	▲ 1.8%	Smart Grid Index, Security, DER Integration, Green Energy
SP Group	SGP	75.0	▲ 8.9%	Smart Grid Index, Security, DER Integration, Green Energy
Tata power-DDL	IND	75.0	▲ 3.6%	Smart Grid Index, Security, DER Integration, Green Energy
TEPCO	JPN	75.0	▲ 1.8%	Smart Grid Index, Security, DER Integration, Green Energy
Ausnet	AUS	73.2	▲ 5.4%	Smart Grid Index, Security, DER Integration, Green Energy
BGE	USA	73.2	▲ 8.9%	Smart Grid Index, Security, DER Integration, Green Energy
KEPCO	KOR	73.2	— 0.0%	Smart Grid Index, Security, DER Integration, Green Energy
Shenzhen Power	CHN	73.2	▲ 8.9%	Smart Grid Index, Security, DER Integration, Green Energy
State Grid Beijing	CHN	73.2	▼ -5.4%	Smart Grid Index, Security, DER Integration, Green Energy
State Grid Shanghai	CHN	73.2	— 0.0%	Smart Grid Index, Security, DER Integration, Green Energy
Jemena	AUS	71.4	▲ 3.6%	Smart Grid Index, Security, DER Integration, Green Energy
Toronto Hydro	CAN	71.4	▲ 7.1%	Smart Grid Index, Security, DER Integration, Green Energy
Ausgrid	AUS	69.6	— 0.0%	Smart Grid Index, Security, DER Integration, Green Energy
BC Hydro	CAN	69.6	▲ 5.4%	Smart Grid Index, Security, DER Integration, Green Energy
EDP	PRT	69.6	— 0.0%	Smart Grid Index, Security, DER Integration, Green Energy
Eversource	USA	69.6	▲ 8.9%	Smart Grid Index, Security, DER Integration, Green Energy
Guangzhou Power	CHN	69.6	▲ 12.5%	Smart Grid Index, Security, DER Integration, Green Energy
Chubu	JPN	67.9	— 0.0%	Smart Grid Index, Security, DER Integration, Green Energy

Utility	Country/Market	Score	+/-	Best Practices
Fluvius	BEL	67.9	▲ 1.8%	Smart Grid Index, Security
PSE	USA	67.9	▲ 7.1%	Smart Grid Index, Security
Liander	NLD	66.1	▲ 12.5%	Smart Grid Index, Security
Vattenfall	SWE	66.1	▲ 19.6%	Smart Grid Index, Security
Duke Energy	USA	64.3	▲ 5.4%	Smart Grid Index, Security, DER Integration, Green Energy
State Grid Chongqing	CHN	64.3	▲ 1.8%	Smart Grid Index, Security, DER Integration, Green Energy
Dominion Energy	USA	62.5	▲ 3.6%	Smart Grid Index, Security, DER Integration, Green Energy
Radius	DNK	62.5	▲ 10.7%	Smart Grid Index, Security, DER Integration, Green Energy
State Grid Nanjing	CHN	62.5	▲ 5.4%	Smart Grid Index, Security, DER Integration, Green Energy
State Grid Sichuan	CHN	62.5	▲ 10.7%	Smart Grid Index, Security, DER Integration, Green Energy
State Grid Tianjin	CHN	62.5	▲ 10.7%	Smart Grid Index, Security, DER Integration, Green Energy
TNB	MYS	62.5	▲ 10.7%	Smart Grid Index, Security, DER Integration, Green Energy
Western Power	AUS	62.5	▲ 5.4%	Smart Grid Index, Security, DER Integration, Green Energy
Helen	FIN	60.7	▲ 3.6%	Smart Grid Index, Security, DER Integration, Green Energy
HK Electric	HKG	60.7	▲ 3.6%	Smart Grid Index, Security, DER Integration, Green Energy
State Grid Hubei	CHN	60.7	▲ 3.6%	Smart Grid Index, Security, DER Integration, Green Energy
Kansai	JPN	58.9	▲ 1.8%	Smart Grid Index, Security, DER Integration, Green Energy
Meralco	PHL	58.9	▲ 5.4%	Smart Grid Index, Security, DER Integration, Green Energy
ESB	IRL	57.1	▲ 10.7%	Smart Grid Index, Security, DER Integration, Green Energy
Vector	NZL	57.1	▲ 10.7%	Smart Grid Index, Security, DER Integration, Green Energy
EVN Hanoi	VNM	55.4	▲ 26.8%	Smart Grid Index, Security, DER Integration, Green Energy
NIEN	GBR	55.4	▲ 10.7%	Smart Grid Index, Security, DER Integration, Green Energy
MEA	THA	53.6	— 0.0%	Smart Grid Index, Security, DER Integration, Green Energy
PEA	THA	53.6	▲ 8.9%	Smart Grid Index, Security, DER Integration, Green Energy
ACEA	ITA	51.8	▲ 8.9%	Smart Grid Index, Security, DER Integration, Green Energy
CEM	MAC	51.8	— 0.0%	Smart Grid Index, Security, DER Integration, Green Energy
EVN HCMC	VNM	51.8	▲ 17.9%	Smart Grid Index, Security, DER Integration, Green Energy
Kahramaa	QAT	51.8	— 0.0%	Smart Grid Index, Security, DER Integration, Green Energy
Stromnetz Berlin	DEU	51.8	▼ -5.4%	Smart Grid Index, Security, DER Integration, Green Energy
Wiener Netze	AUT	51.8	▼ -1.8%	Smart Grid Index, Security, DER Integration, Green Energy
Eskom	ZAF	50.0	▲ 8.9%	Smart Grid Index, Security, DER Integration, Green Energy
Light	BRA	48.2	▲ 1.8%	Smart Grid Index, Security, DER Integration, Green Energy
Rosseti	RUS	48.2	▲ 10.7%	Smart Grid Index, Security, DER Integration, Green Energy
State Grid Changsha	CHN	48.2	▲ 1.8%	Smart Grid Index, Security, DER Integration, Green Energy
Tata Power Ltd	IND	48.2	▲ 1.8%	Smart Grid Index, Security, DER Integration, Green Energy
PLN	IDN	44.6	— 0.0%	Smart Grid Index, Security, DER Integration, Green Energy
Edenor	ARG	37.5	▲ 3.6%	Smart Grid Index, Security, DER Integration, Green Energy
Enel Dist Sao Paulo	BRA	37.5	▲ 3.6%	Smart Grid Index, Security, DER Integration, Green Energy
Sarawak Energy	MYS	37.5	▲ 5.4%	Smart Grid Index, Security, DER Integration, Green Energy
Enel Dist Chile	CHL	35.7	▲ 12.5%	Smart Grid Index, Security, DER Integration, Green Energy
Edesur	ARG	30.4	▲ 8.9%	Smart Grid Index, Security, DER Integration, Green Energy
City Power	ZAF	21.4	▲ 1.8%	Smart Grid Index, Security, DER Integration, Green Energy

**Disclaimer:**  
We have arrived at the findings, opinions and conclusion set out in this paper based on application of our methodology to materials and information we believe to be accurate and reliable, and which are made available in the public domain at the time we carried out the relevant research and study. Despite our best efforts, the materials and information may include inaccuracies and errors. The findings, opinions and conclusion will be construed solely as statements of opinion on the matters addressed in this paper including the degree of grid smartness ratings and shall not in any way represent authoritative assessment or judgment on any such matters. You assume the sole risk of making use of and/or relying on the findings, opinions and conclusion made available in this paper. To the extent permitted by law, we disclaim liability to any person or entity for all and any liability, direct and indirect, special, consequential, incidental losses and damages whatsoever arising from or in connection with your access to or use of the findings, opinions and conclusions in this paper.