



GE Power

# 20% in 2020 – Unlocking ASEAN's Energy Efficiency Potential

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# The NEW GE Power

## GAS POWER SYSTEMS



## POWER SERVICES



## STEAM POWER SYSTEMS



## GRID SOLUTIONS



## GE HITACHI NUCLEAR ENERGY



## POWER DIGITAL SOLUTIONS



## POWER CONVERSION



## AUTOMATION & CONTROLS



BEING DIVESTED

## INDUSTRIAL SOLUTIONS



Target close date 4Q

## WATER & PROCESS TECHNOLOGIES



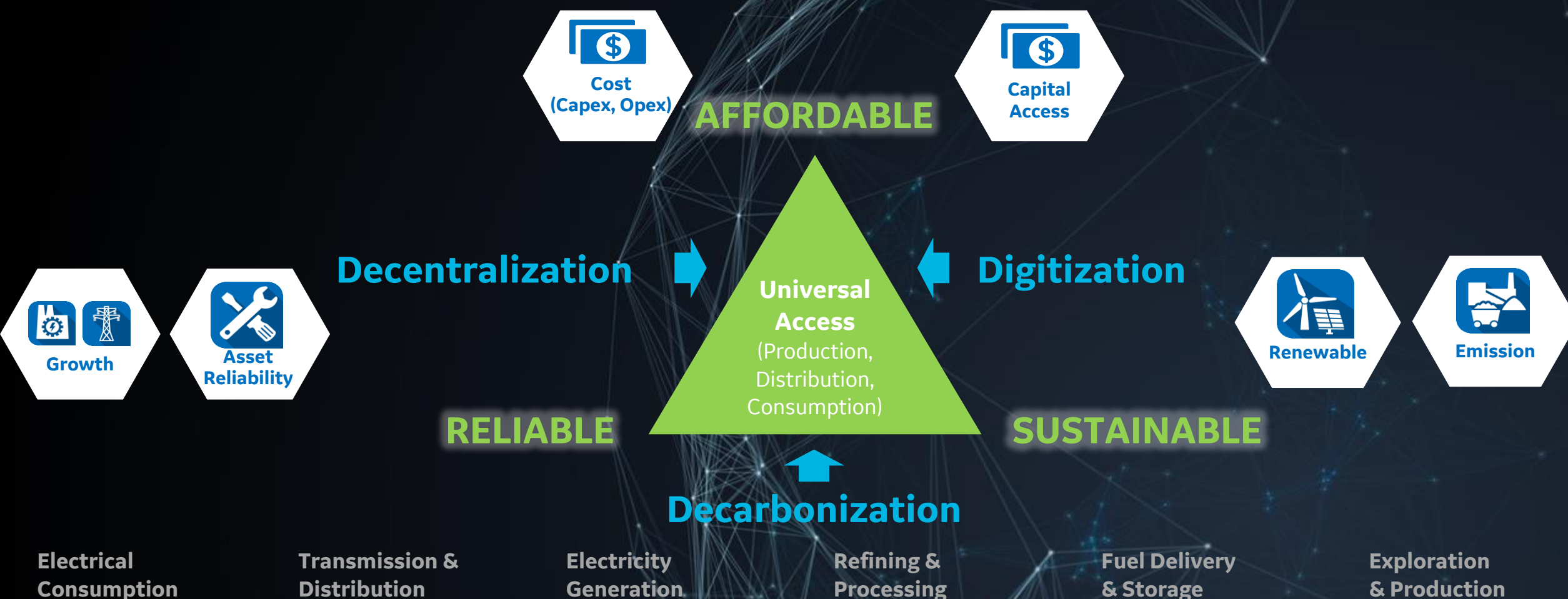
Target close date 3Q

- Key locations in the US, Switzerland and France
- Expansive global reach ... >150 countries
- Powering more than 1/3 of the world's power
- ~1,600 GW installed capacity
- >750,000 installed assets
- Part of 90% of the world's power grids worldwide

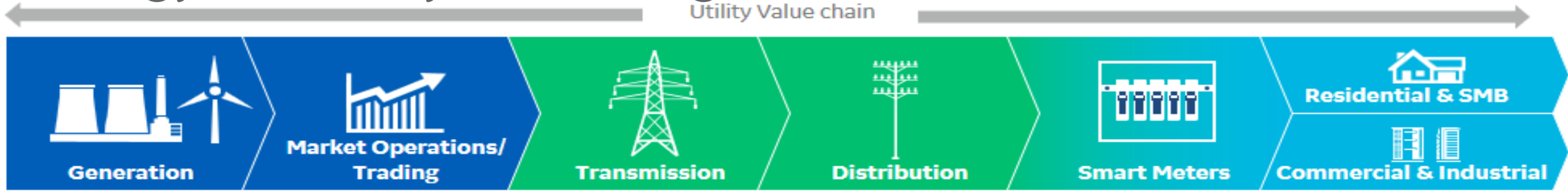




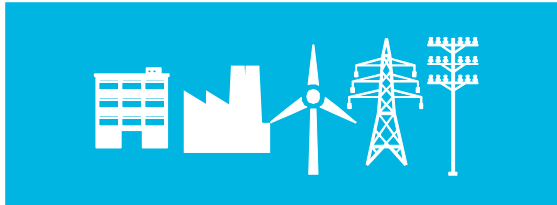
# Energy Ecosystem Goals



# Energy Industry Challenges



## NEW BUSINESS & OPERATING MODELS



Impact of distributed & variable energy sources changes the value chain ecosystem, its players & models.

## REGULATORY PRESSURE



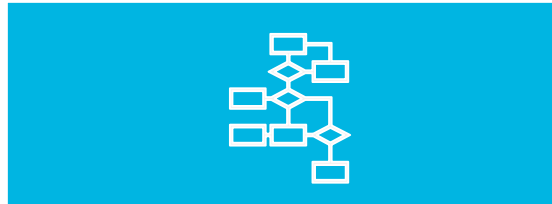
Shifting regulatory models require business agility enabled by insight-driven decisions.

## EMPOWERED CUSTOMERS



Customers are empowered on their terms (service, cost, sustainability).

## CYBER SECURITY



Balancing adequate generation capacity/fuel supply, while mitigating infrastructure security risks

## DIGITAL DISRUPTION



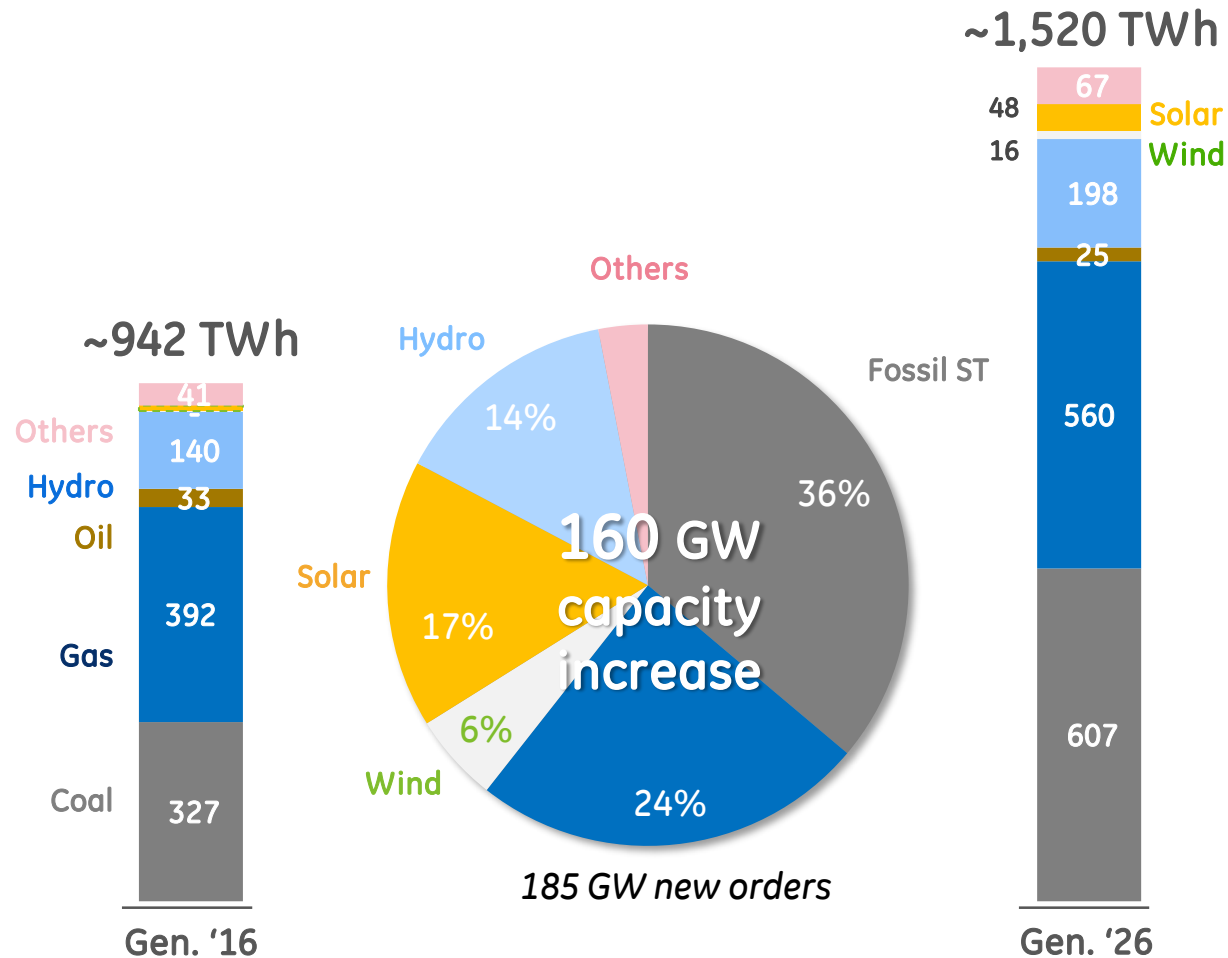
Deployment of new infrastructures based on digital (e.g., meters).

## WORKFORCE OF THE FUTURE



Changing employee expectations for use of digital to make jobs easier and more enriching.

# ASEAN power generation outlook



Source: GE Power Marketing – MACA 2017

## OPPORTUNITIES

### Continued power demand

5%+ CAGR over the next decade & 60+% increase in generation

### Lower LNG price

Supporting gas in the region, increasingly dependent on LNG

### Coal PG growth

Overtakes gas as the largest source by 2020

## CHALLENGES

### Project delays

Planned vs. actual execution of projects

### Lack of stable & predictable environment

Risks associated with projects vs. those in advanced countries

### Meeting COP21 target

Ambitious targets set vs. need to power the countries

**Strong demand growth & PG capacity growth continues in ASEAN**



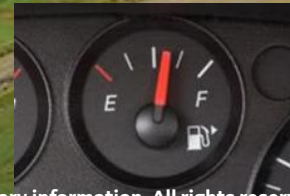
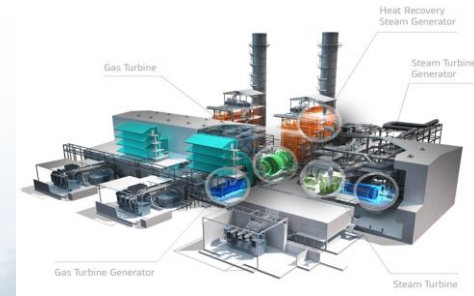
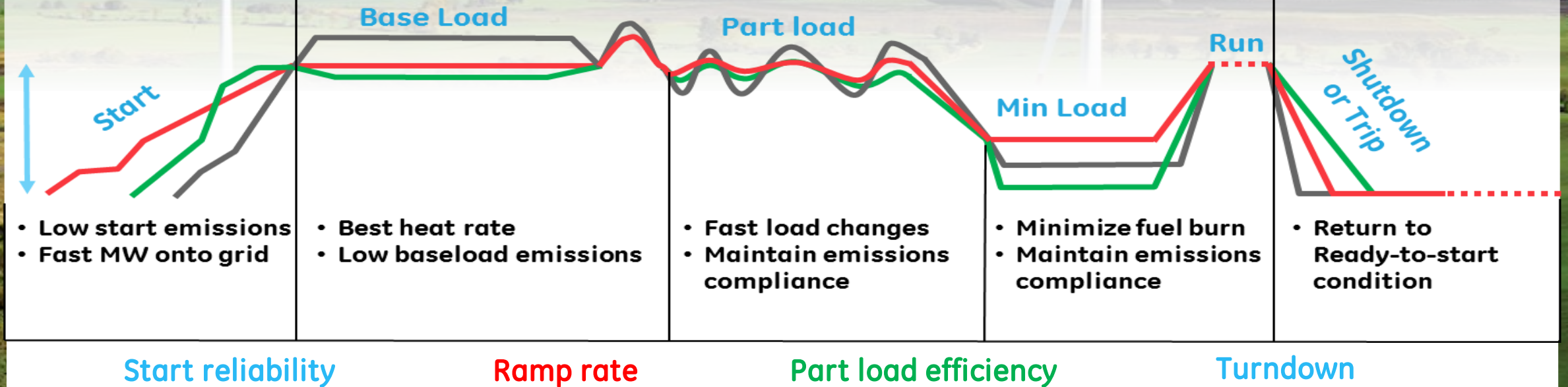


# Combined cycle flexible profile

## Industry changes

- Role for natural gas generation
- Evolving emission requirements
- Deployment of renewables
- Developing industry structures for variable power
- Regional diversity

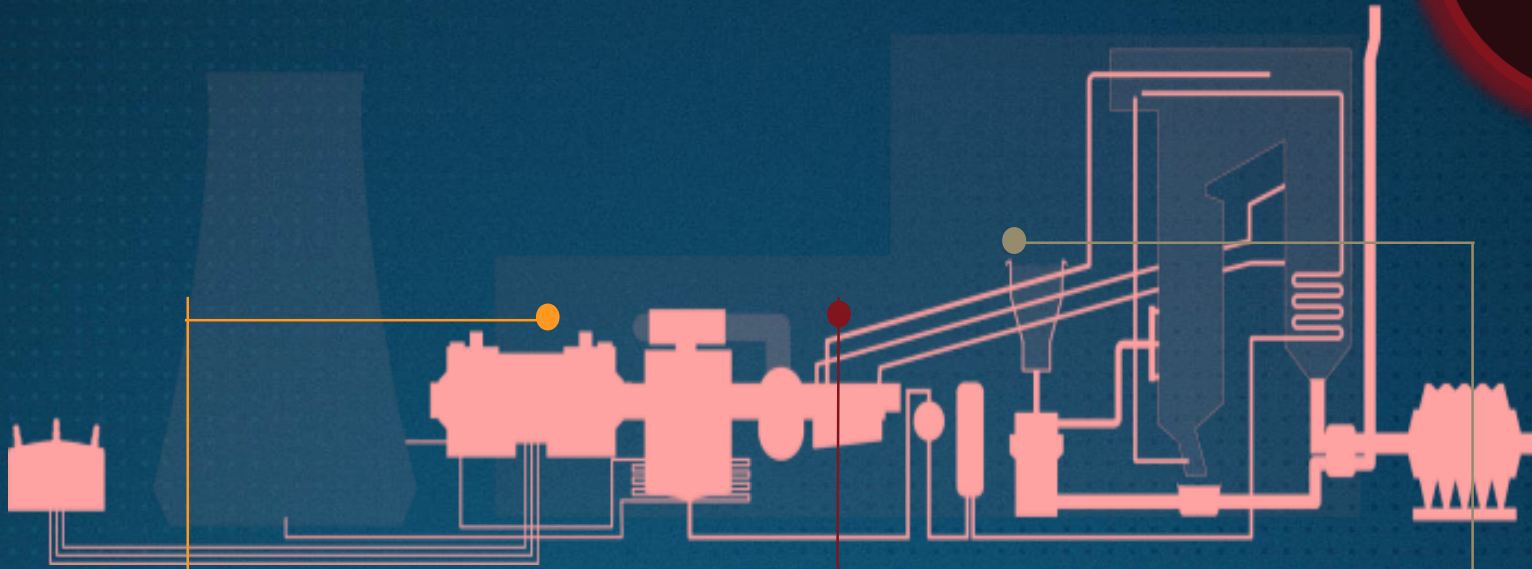
## Volatility of grid capacity



# Smarter Cleaner Steam Power

*Steam Power technology has accelerated with the development of **leading efficiency, lower emission** technologies to deliver more value to customers.*

Driving towards  
**≥ 50%**  
efficiency



## Technology Advancements

1½ % points more efficient  
& 3% lower emissions  
compared to today's best



## Digital Capabilities

Delivers up to  
1 ½% more power over  
the life of a plant



## Environmental Controls

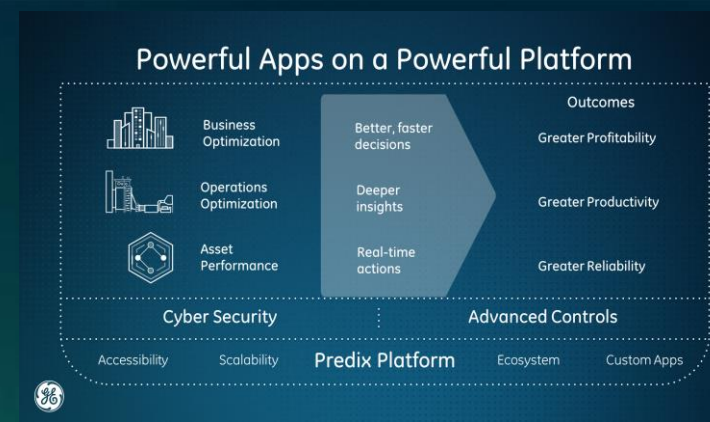
Able to lower emissions by 70%  
more than the world's most  
stringent emission standards





# Digital Power Plant

Connecting Data & People in the Organization





# Thank You

