

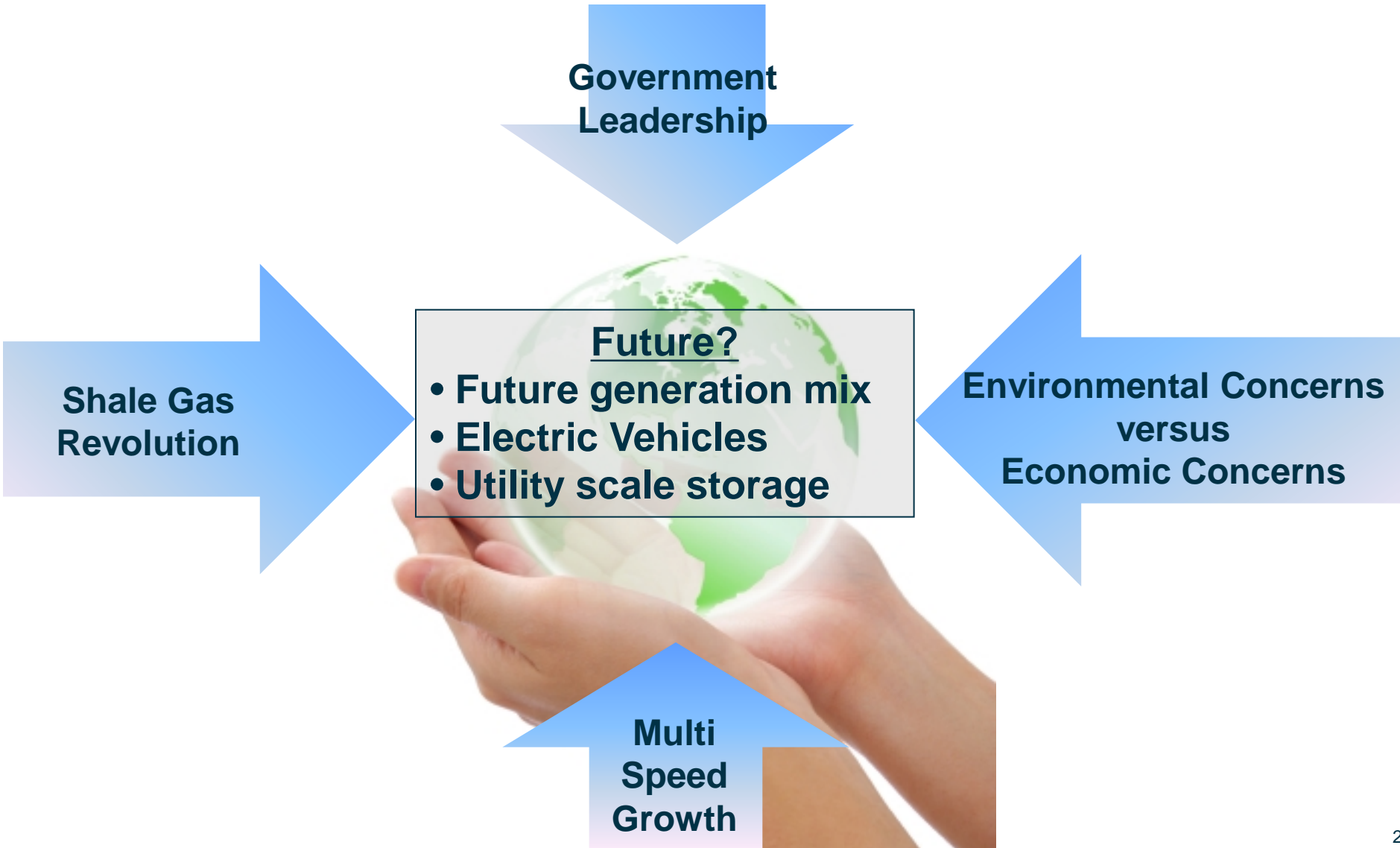
Renewable and Energy Efficiency Programs

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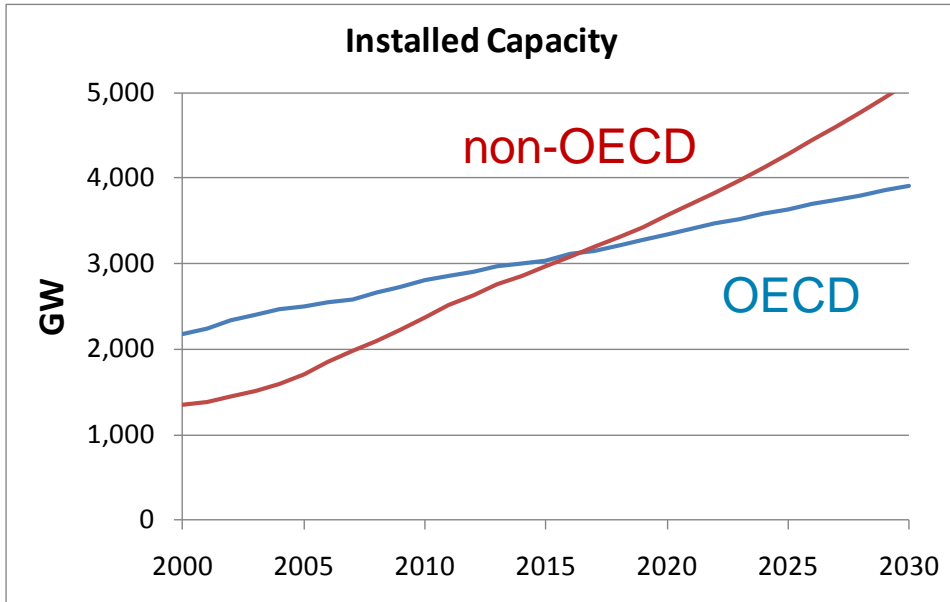


The key forces affecting the investment landscape will shape how the power infrastructure needs are met



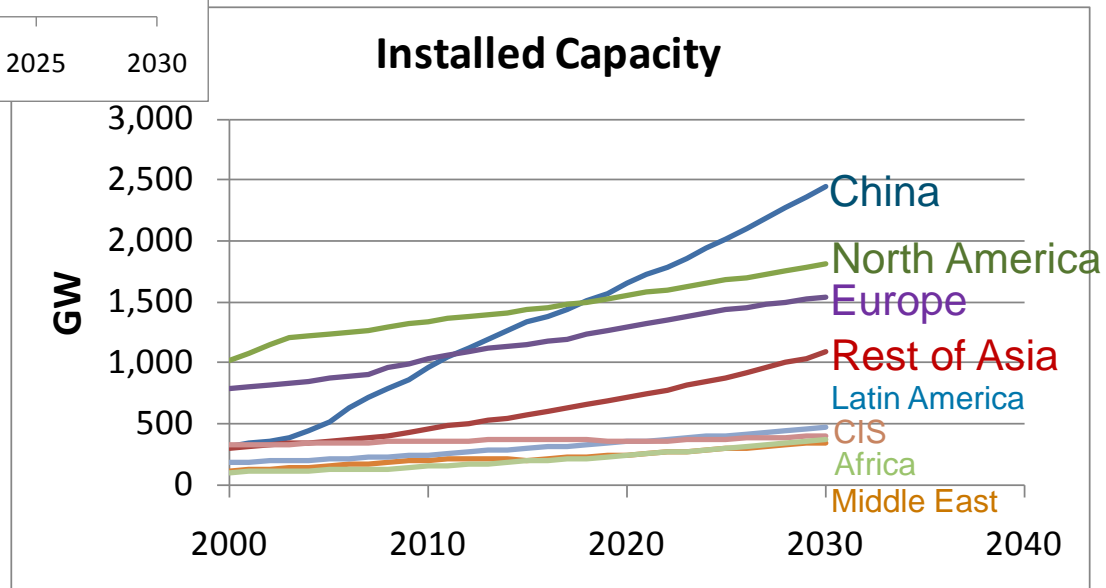


Almost half of the world's projected 2035 power infrastructure is not yet built and most of that is in Asia



Non-OECD growth is far higher than that expected within OECD nations

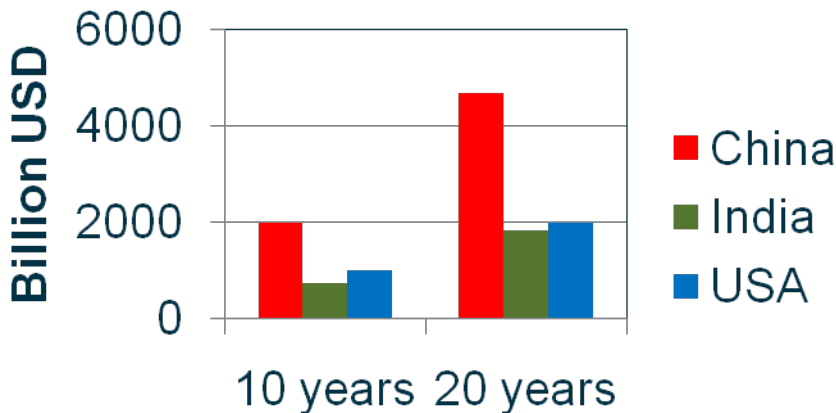
However, only in Asia will that high growth result in absolute size rivaling, or even exceeding, the OECD power markets



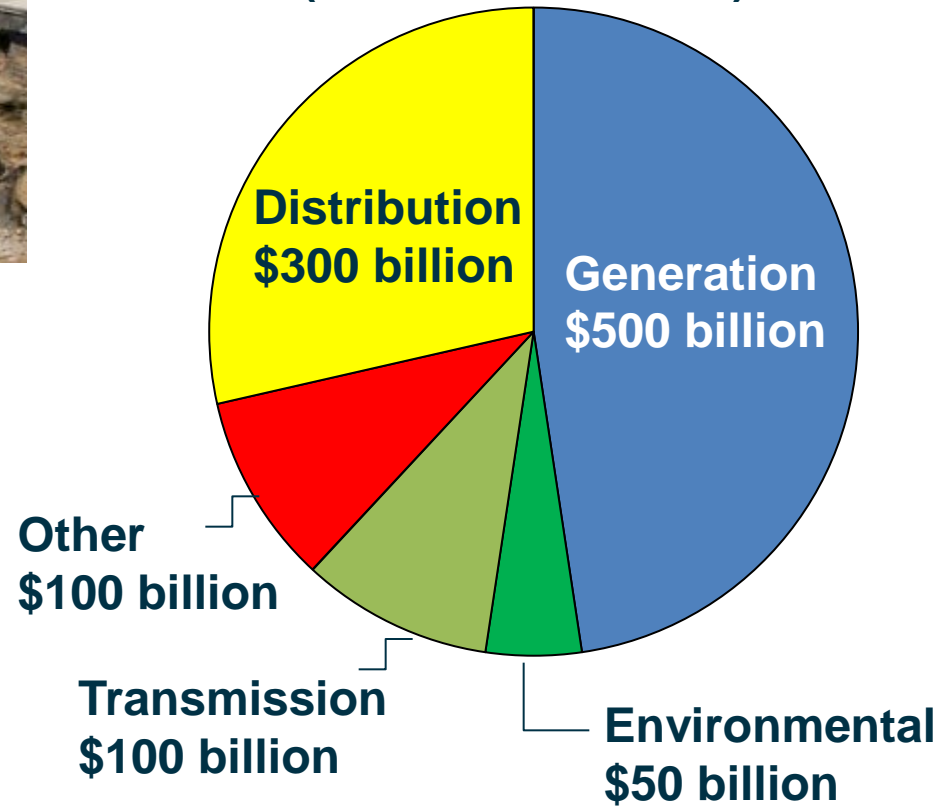


In developed economies the need is driven by renewal; it is substantial and may come fast

Infrastructure gets old!



Investment Needed in US Power Infrastructure 2011-2021, \$USD (exceeds \$1 trillion)

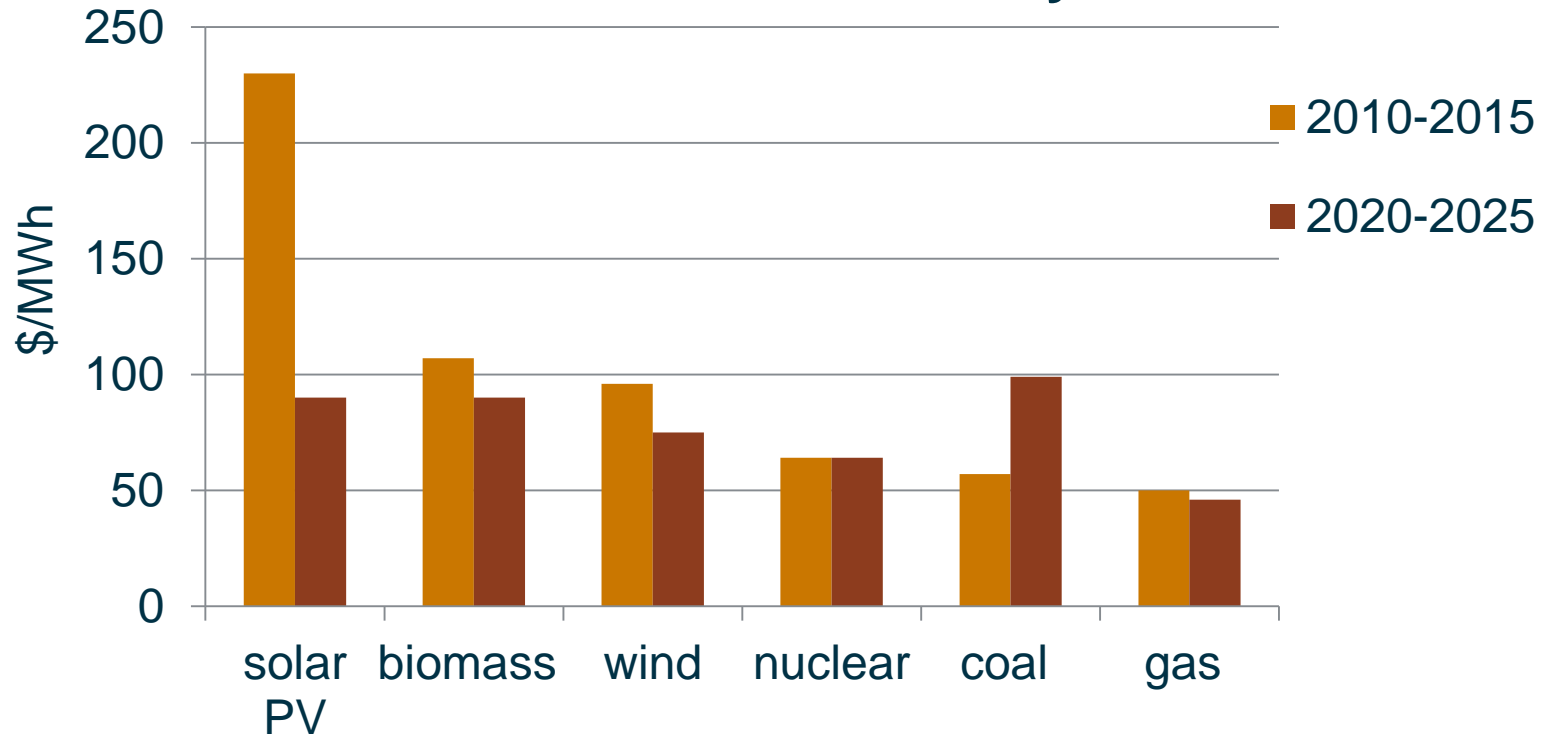


Sources CERA, ASCE, Central Electricity Authority of India, McKinsey, NEF, EIA



While the world is focused on clean energy, renewables face regulatory uncertainty and low gas prices

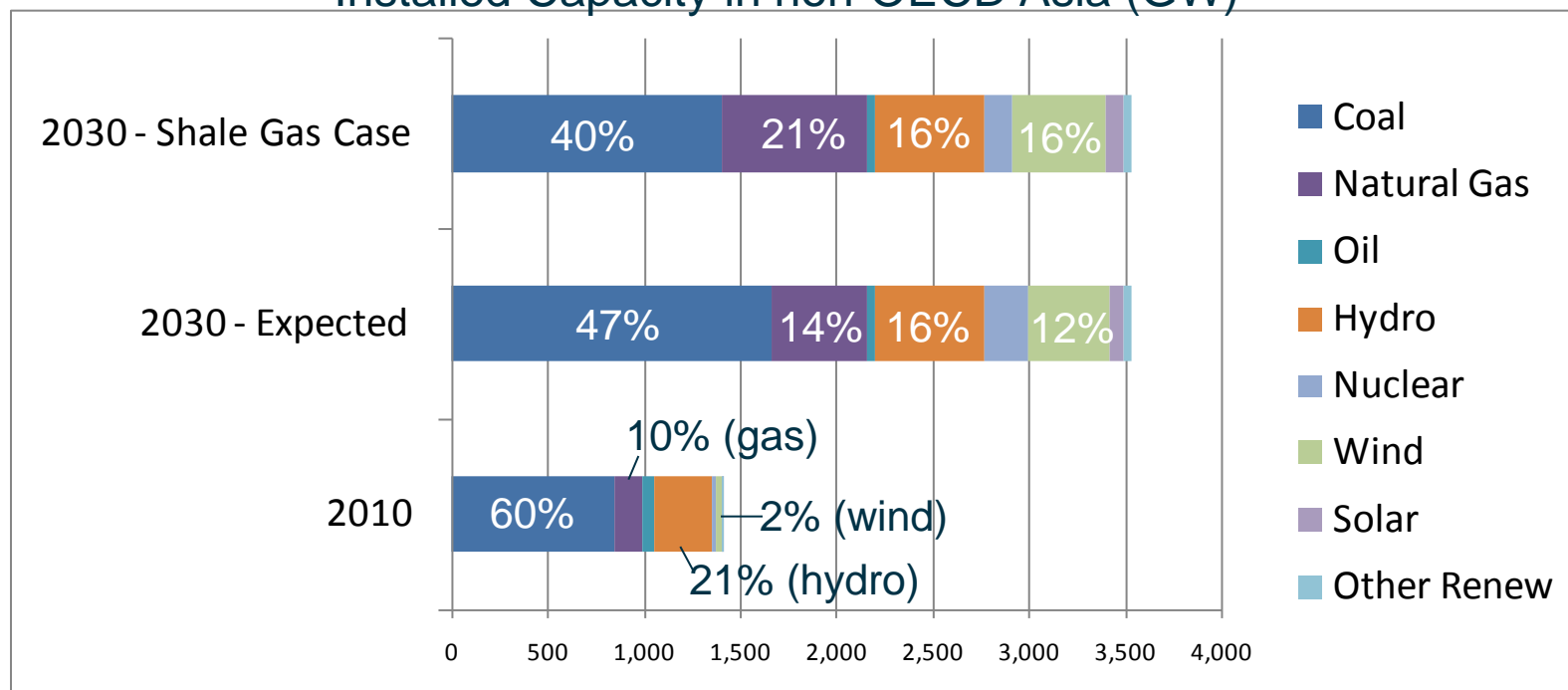
Levelized Cost of Electricity



Natural gas continues pressure on renewables, while wind dips below coal due to carbon capture price impact

All key driving forces suggest the fuel mix will change substantially but what happens to gas is the biggest uncertainty

Installed Capacity in non-OECD Asia (GW)

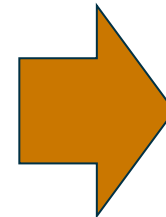
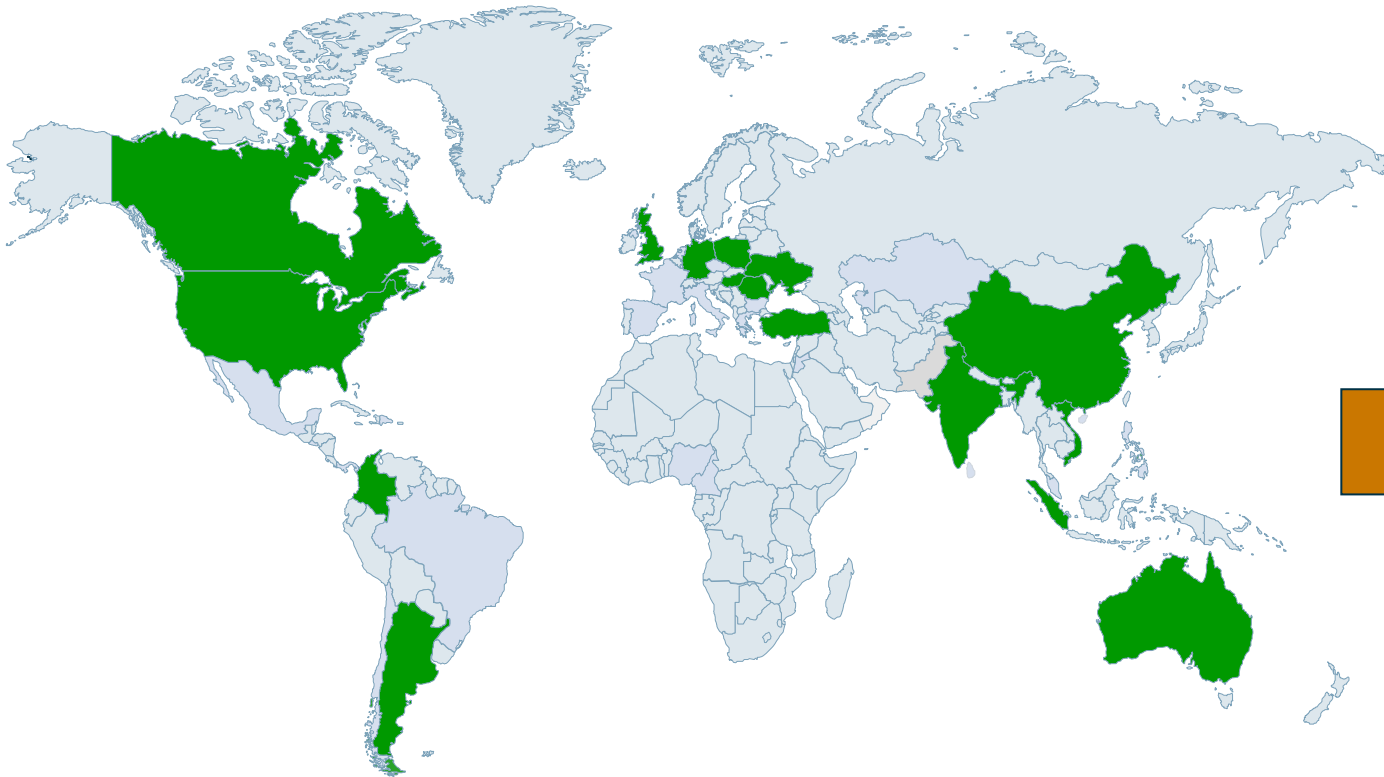


- The base case suggests coal's share of the mix is reduced to 47%, gas grows to 14%, hydro share is reduced by 23% while wind's share is increase by factor of 6.
- A case that considers shale production across Asia similar to that expected in US (40 billion cubic feet per day) increases the gas share to 21% or twice that today. However, coal remains the largest source.



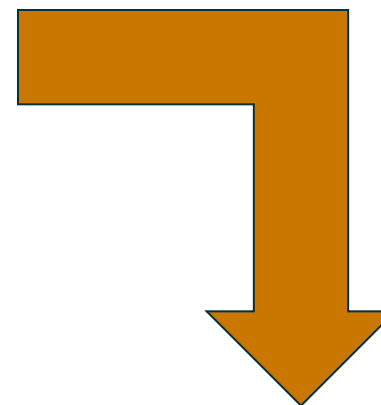
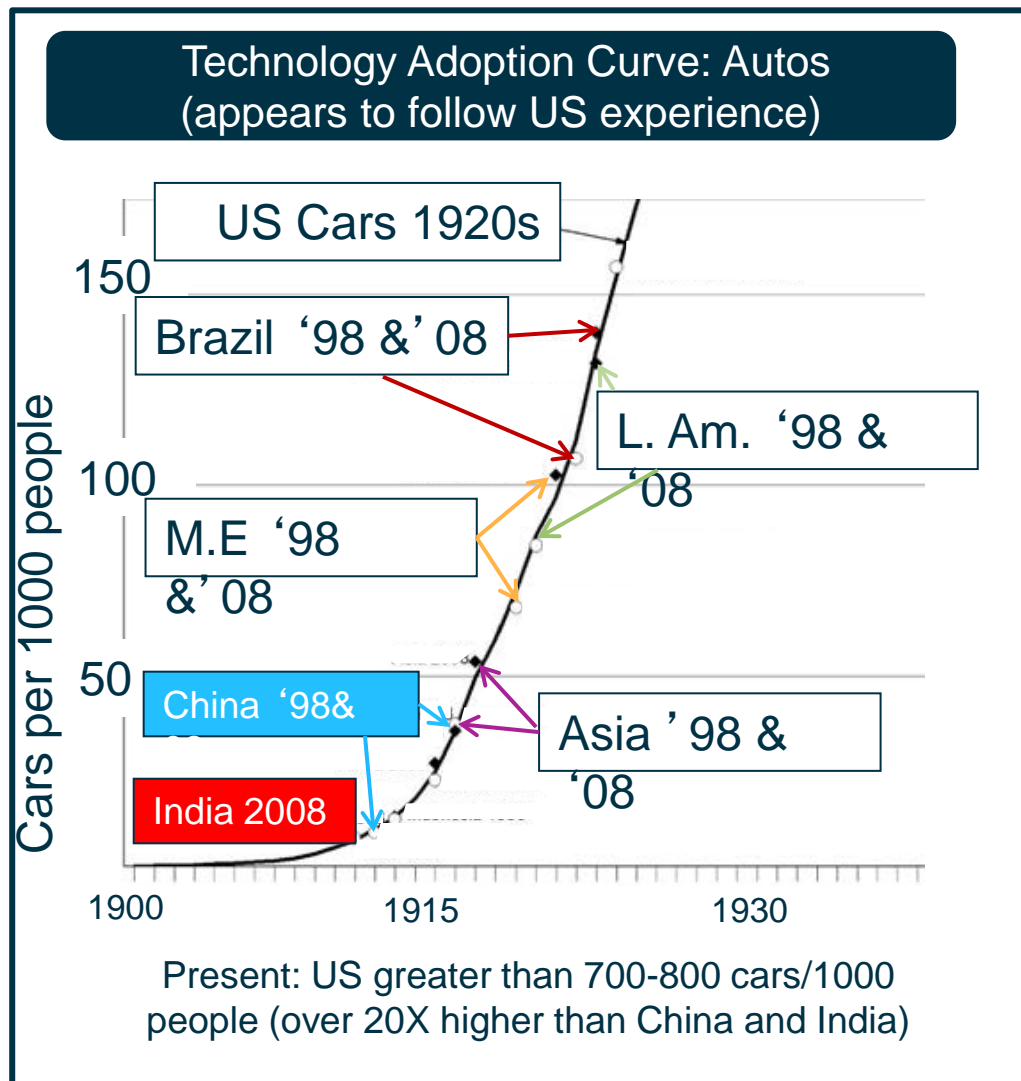
Unconventional gas is found across the globe and the race to capture and identify the next gas revolution is underway

Active licensing / drilling



Success could transform these markets like the North American has been impacted

The potential of electric cars occurs just when there might be an explosion in the number of cars in Asia



Will the huge number of new autos be electric vehicles?

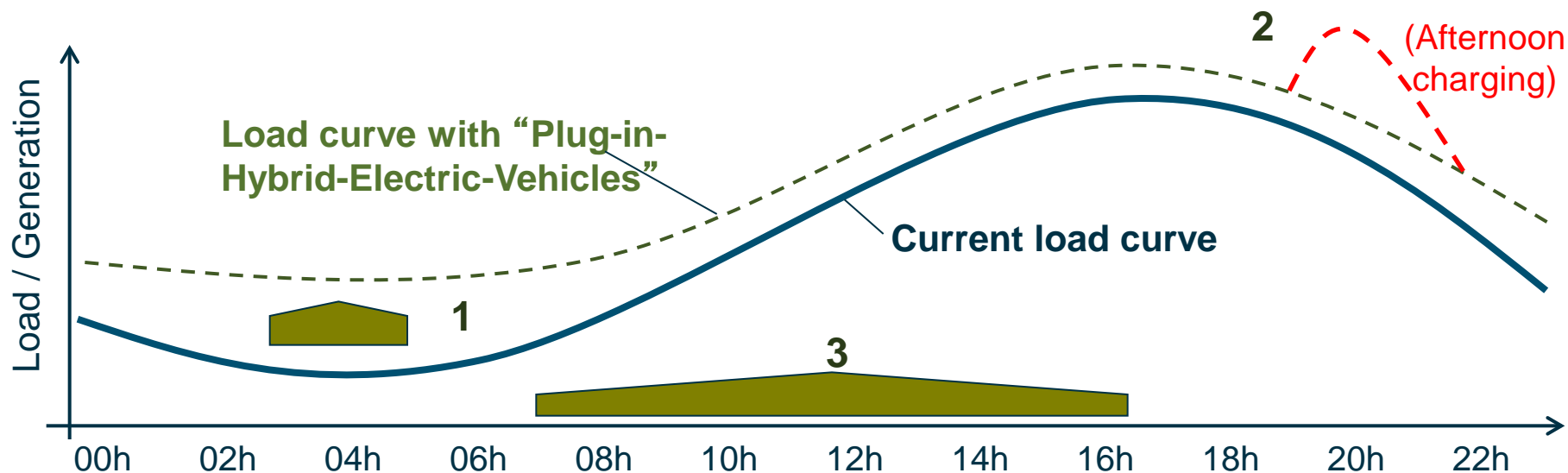
Asian Car Demand

2011 Forecast:

North America: **15.14m units**

China and India: **24.24m units**

Electric vehicles not only increase power demand but will profoundly impact the load curve



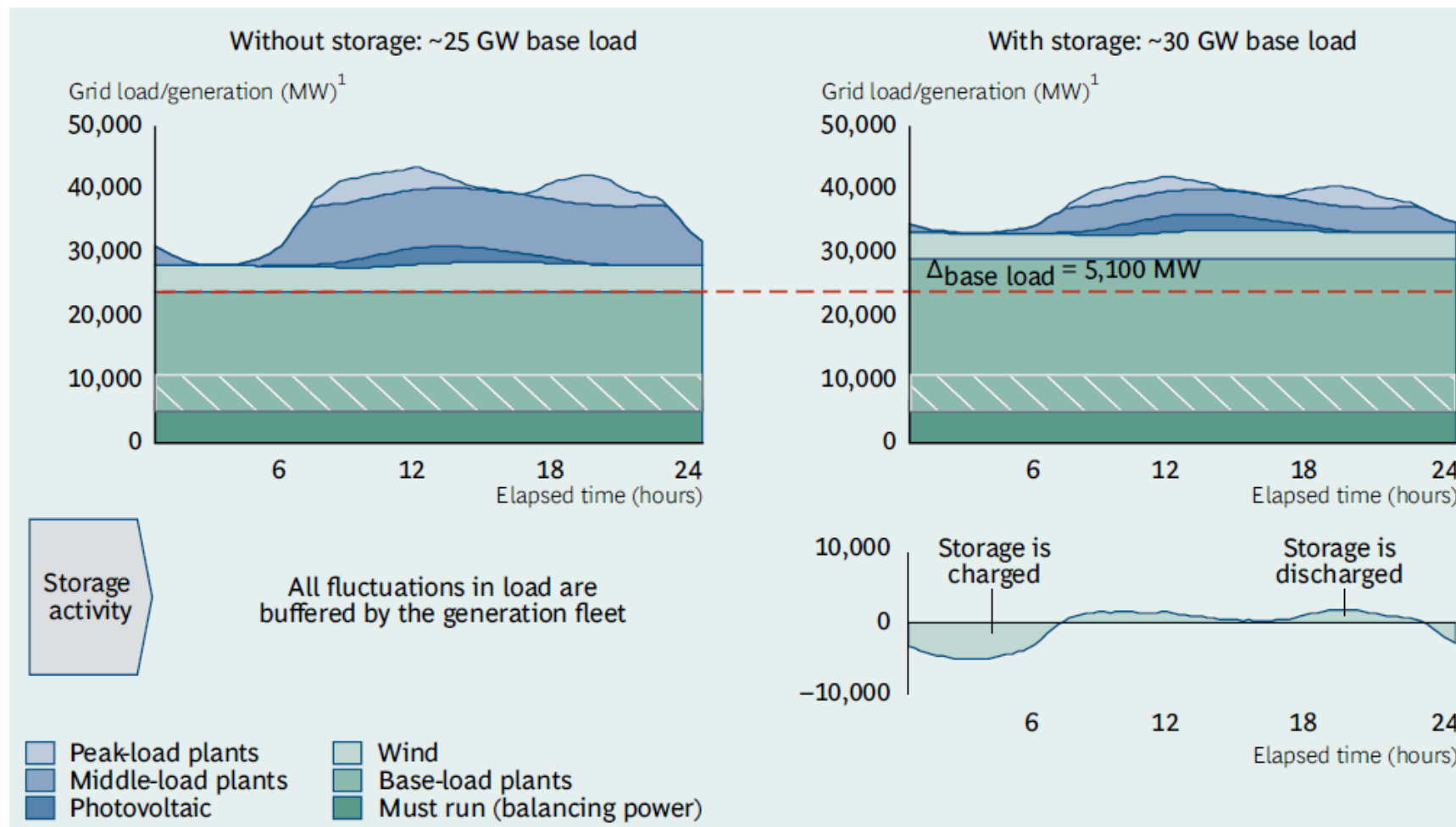
1. Higher base load
2. Need to avoid mega-peaks in afternoon charging
3. Increased electricity demand ~ 20% increase in household demand

What would a smoothed load curve mean for you?

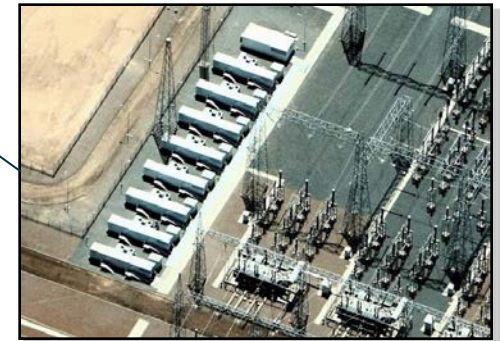
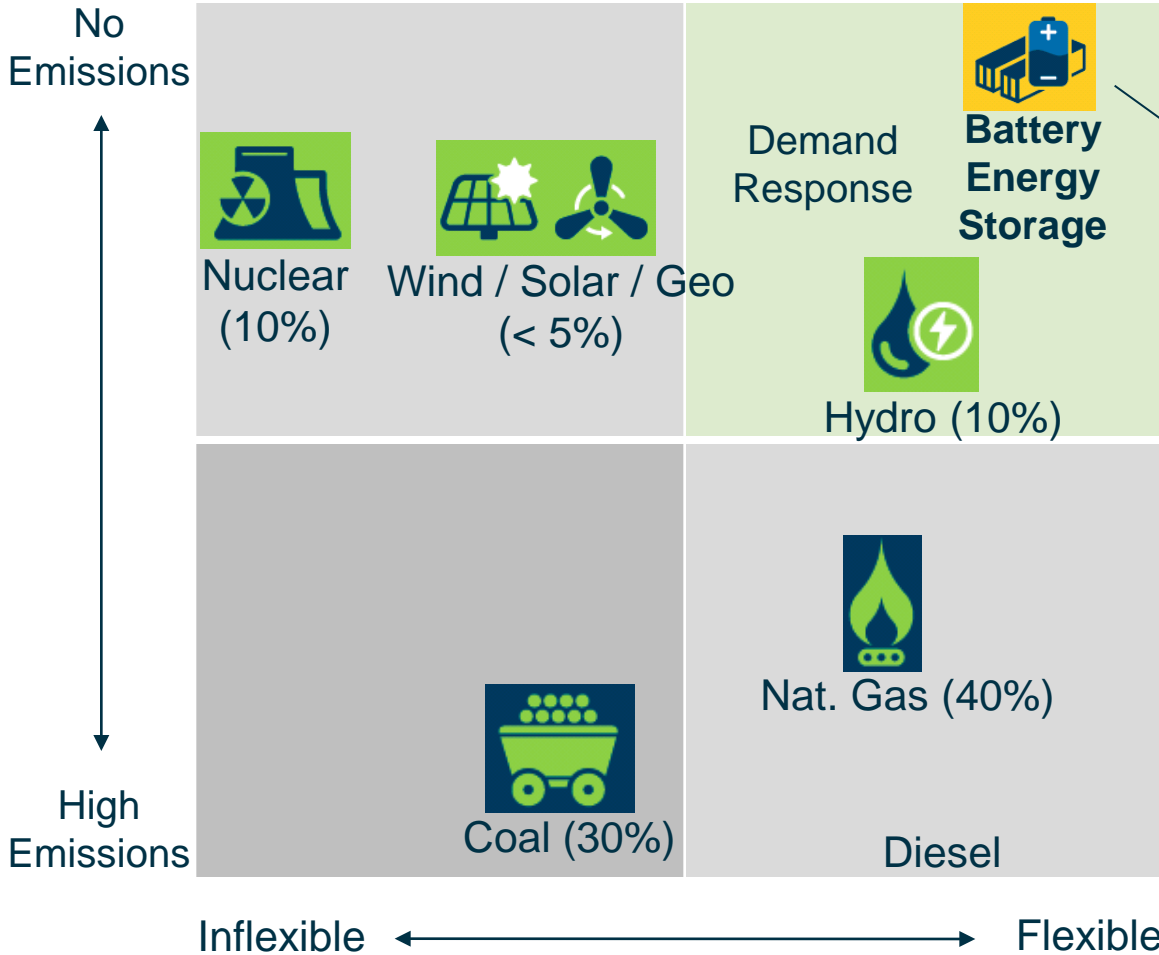


Energy storage will further shape the load curve.

Potential generation portfolio



Energy Storage is a highly flexible emission-free resource to the power grid.



AES Energy Storage in Los Andes, Chile



An emission free and highly flexible resource.



Conclusion

- Investments for power will be highest in Asia due to economic growth; however, developed markets like US have large renewal needs
- Key Forces Driving the Future:
 - The rapid economic development in Asia will be dynamic; opportunity centers will change
 - Shale Gas has changed global energy markets and there is likely to be additional dislocations given the shale potential outside of North America
 - The balance between environmental concerns and economic growth is shifting
- The following future scenarios, shaped by the driving forces above, could transform our business
 - Significant change in the generation mix
 - Rapid and broad adoption of electric vehicles
 - Utility-scale, low-cost energy storage