

ICF Viewpoint



Energy Storage Systems (ESS) for India

Sept 2017



REI 2017 Expo –
Storage Spectrum

Gurpreet Chugh
Consulting Director, ICF

A Growing, Global Company Since 1969



Global professional,
technology + marketing
services firm

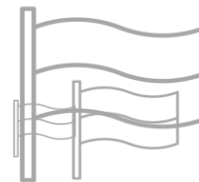


More
than
5,000 People

Headquartered in Washington, DC, with:



55 Offices



80 Nationalities

\$1B In annual revenue



Speaking more than
70 Languages

Three Primary Domains of Expertise

ENERGY, ENVIRONMENT, TRANSPORTATION

- Utility strategy
- Energy efficiency program design and management
- New product and service development
- Customer program management
- Sales growth support
- EV planning and deployment
- Distribution system planning and infrastructure monitoring
- Environmental impact assessments
- Energy and asset markets strategy
- Environmental policy and programs

HEALTH, EDUCATION, SOCIAL PROGRAMS

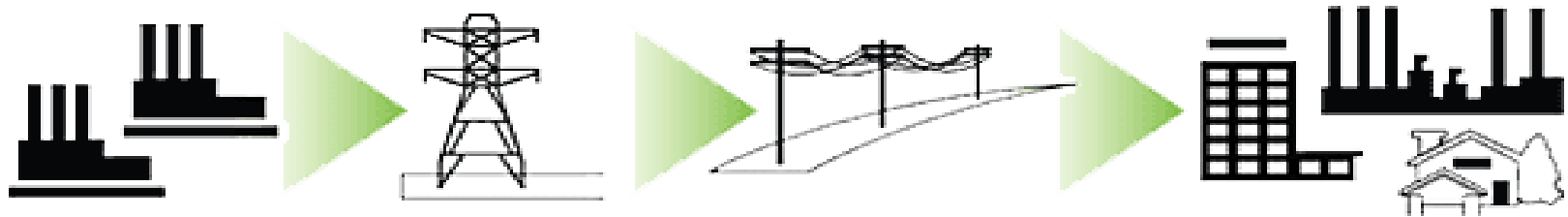
- Public health research and evaluation
- Public health surveillance
- National emergency preparedness
- Survey research
- Environmental science
- Biomedical and public health informatics
- Educational programs
- International development
- Disaster recovery

MARKETING AND TECHNOLOGY TRANSFORMATION

- Digital and mgmt. consulting
- Brand, reputation and issues mgmt.
- Advertising and design
- 1to1 Marketing
- PR and integrated campaigns
- Content and strategy development
- Media planning and buying
- Enterprise content mgmt. and e-commerce design / implementation
- App development and systems integration
- BI, analytics and performance measurement / optimization
- Cybersecurity



ESS deployment/ ownership - *depends upon the need of services and market structure*



Generation of Electricity

Transmission

Distribution

Customers

Storage Solutions & Services

Generation or Transmission

- Support to renewables
- Spinning reserves
- Frequency Regulation
- Voltage support
- Black Start
- Energy arbitrage

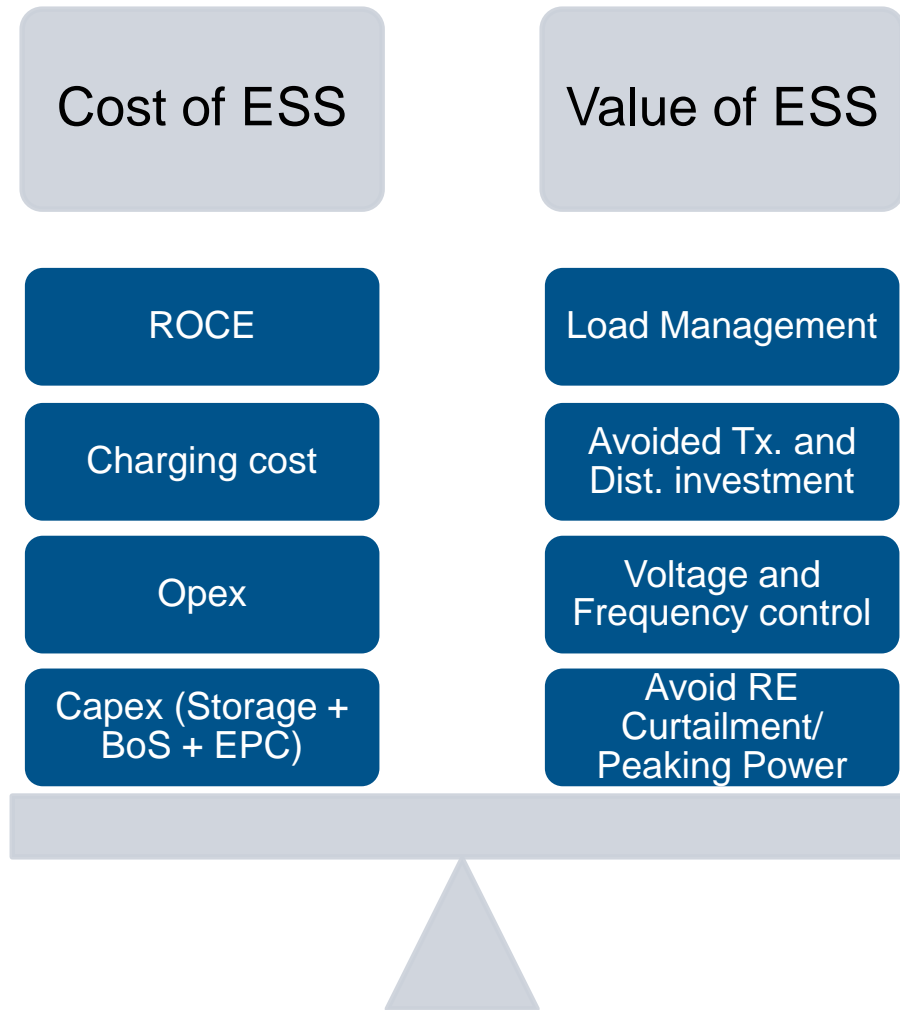
Distribution

- Load management
- Investment deferral
- Avoided peak power purchase
- Increased RE deployed

Behind the meter

- Increased consumption PV
- Avoided peak charges
- Backup power
- Microgrid/ off-grid self sufficiency
- Reliability for Island systems

Economics of ESS – *Balancing Cost with Value*



ICF – Some of our Storage Assignments

- **Leveraging Fast Ramping (primarily energy storage) capabilities beyond Frequency Regulation**
- **Roadmap on Barriers to Energy Storage Deployment in California**
- **Assessment of Regulation Markets for Energy Storage Devices – 2013**
- **Evaluation of Advanced Battery Technology, Panasonic Eco Solutions – 2015**
- **Cost Benefit Analysis of Storage for in Support of California AB 2514 Storage Ruling – 2010**
- **Advancing and Maximizing the Value of Energy Storage Technology: A California Roadmap – 2014**
- **Impact of Energy Storage on California Capacity Market, (Confidential) – 2014.**



Contact us

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