Innovation and What’s Next
Mark Little
Vice President and Chief Technology Officer

Forward-Looking Statements:
This document contains “forward-looking statements” – that is, statements related to future, not past, events. In this context, forward-looking statements often address our expected future business and financial performance and financial condition, and often contain words such as “expect,” “anticipate,” “intend,” “plan,” “believe,” “seek,” “see,” “will,” or “would.” Forward-looking statements by their nature address matters that are, to different degrees, uncertain. For us, particular uncertainties that could cause our actual results to be materially different than those expressed in our forward-looking statements include: current economic and financial conditions, including volatility in interest and exchange rates, commodity and equity prices and the value of financial assets; potential market disruptions or other impacts arising in the United States or Europe from developments in sovereign debt situations; the impact of conditions in the financial and credit markets on the availability and cost of General Electric Capital Corporation’s (GECC) funding and on our ability to reduce GECC’s asset levels as planned; the impact of conditions in the housing market and unemployment rates on the level of commercial and consumer credit defaults; pending and future mortgage securitization claims and litigation in connection with WMC, which may affect our estimates of liability, including possible loss estimates; our ability to maintain our current credit rating and the impact on our funding costs and competitive position if we do not do so; the adequacy of our cash flows and earnings and other conditions which may affect our ability to pay our quarterly dividend at the planned level or to repurchase shares at planned levels; GECC’s ability to pay dividends to GE at the planned level, which may be affected by GECC’s cash flows and earnings, financial services regulation and oversight, and other factors; our ability to convert pre-order commitments/wins into orders; the price we realize on orders since commitments/wins are stated at list prices; the level of demand and financial performance of the major industries we serve, including, without limitation, air and rail transportation, power generation, oil and gas production, real estate and healthcare; the impact of regulation and regulatory, investigative and legal proceedings and legal compliance risks, including the impact of financial services regulation; our capital allocation plans, as such plans may change including with respect to the timing and size of share repurchases, acquisitions, joint ventures, dispositions and other strategic actions; our success in completing announced transactions and integrating acquired businesses; adverse market conditions, timing of and ability to obtain required bank regulatory approvals, or other factors relating to us or Synchrony Financial could prevent us from completing the Synchrony IPO and split-off as planned; our ability to complete the proposed transactions and alliances with Alstom and realize anticipated earnings and savings; the impact of potential information technology or data security breaches; and numerous other matters of national, regional and global scale, including those of a political, economic, business and competitive nature. These uncertainties may cause our actual future results to be materially different than those expressed in our forward-looking statements. We do not undertake to update our forward-looking statements.

This document includes certain forward-looking projected financial information that is based on current estimates and forecasts. Actual results could differ materially. “This document may also contain non-GAAP financial information. Management uses this information in its internal analysis of results and believes that this information may be informative to investors in gauging the quality of our financial performance, identifying trends in our results and providing meaningful period-to-period comparisons. For a reconciliation of non-GAAP measures presented in this document, see the accompanying supplemental information posted to the investor relations section of our website at www.ge.com.”

“In this document, “GE” refers to the Industrial businesses of the Company including GECC on an equity basis. “GE (ex-GECC)” and/or “Industrial” refer to GE excluding Financial Services.”

GE’s Investor Relations website at www.ge.com/investor and our corporate blog at www.gereports.com, as well as GE’s Facebook page and Twitter accounts, contain a significant amount of information about GE, including financial and other information for investors. GE encourages investors to visit these websites from time to time, as information is updated and new information is posted.
Leadership in Technology

Investment ($B)

<table>
<thead>
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<th>Year</th>
<th>Investment</th>
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</thead>
<tbody>
<tr>
<td>'10-'12</td>
<td>$16</td>
</tr>
<tr>
<td>'13E-'15F</td>
<td>$17</td>
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</tbody>
</table>

% revenue

<table>
<thead>
<tr>
<th>Period</th>
<th>% Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>'10-'12</td>
<td>5-6</td>
</tr>
<tr>
<td>'13E-'15F</td>
<td>~5</td>
</tr>
</tbody>
</table>

Why we win

- Material science (GRC)
- Power gen (P&W)
- Electrification (EM)
- Diagnostics/sensors (HC)

Value creation

- Broad and deep technical reach... ability to spread ideas
- Deep technical foundation ... to better serve our customers
- Broad global footprint (7 GRC network)
- Investment required ... now in the run rate

1. GRC pushes capabilities rapidly across the Company
2. Execution on big and complex systems ... technical scale (i.e., engines)
3. Foundation of materials, modeling, and manufacturing science
4. Strong linkage with customers and partners
5. Product management tools to integrate gaps and simplification
GE Global Research

The technology development arm for GE

• First U.S. industrial lab
• Market-focused R&D
• One of the world’s most diversified industrial research organizations
• Leading a team of 50,000 world-class engineers
Expanding our global presence

1900 - 1999

- Advanced Manufacturing and Software Technology Center
  Detroit, MI

- Global Research Headquarters
  Niskayuna, NY

- O&G Tech Center
  Oklahoma

- Software CoE
  San Ramon, CA

2000 - 2009

- Global Research Europe
  Munich, Germany

- 2X Size + Customer Innovation Center

- Brazil Technology Center
  Customer focused R&D
  Rio de Janeiro, Brazil

- Welch Technology Center
  Bangalore, India

2010→

- Russia

- Japan

- Israel

- China Technology Center
  Shanghai, China

- + 3 Customer Innovation Centers
Global Research annual funding

GE business programs
- Next generation product technology
- Short-term technical challenges

GE corporate programs
- Advanced Technology programs
- New ideas
- High-risk/high reward

External partnerships and gov’t. funded
- Joint technology
- Specific customer focus

~55%
~30%
~15%
Key Technologies
What’s Next

Six areas of research that will ignite the future

EXTREME MACHINES

SUPER MATERIALS

INTELLIGENT INTERNET

MAPPED MINDS

BRILLIANT FACTORIES

ENERGY EVERYWHERE
Aviation: Growth enabled through leading technology

Departures
# departures (millions)

Technology Advancement with GRC

- Materials and super alloys
- Low emissions combustion
- Turbine cooling and aerodynamics
- Gas path and flow sealing
- Carbon-fiber composites
- Ceramic matrix composites
- Model-based controls
- Repair and advanced manufacturing
- High Performance Computing

2 of 3 daily flights powered by GE technology

*CFM is a 50/50 JV between GE and Safran. CFM engines utilize both GE and Safran technologies.
*CFM LEAP...not just any new product introduction

- First engine fired two days ahead of schedule
- Achieved max thrust
- 15,000 parts...3,000° F temps
- Composites, ceramics, super alloys
- 3D printed fuel nozzles
- Clearances ¼ thickness of a human hair

*CFM is a 50/50 JV between GE and Safran.
What are ceramic-matrix composites?

CMCs are silicon carbide fibers in a silicon carbide matrix.

High-temperature: CMCs and Nickel alloys.

Not brittle: Monolithic ceramics and CMCs.

+500°F + 1/3 weight of metal = 1.5% Fuel efficiency.
Power & Water: HA turbine technology

- **Lower OPEX**: Industry-leading efficiency & maintenance costs
- **Lower CAPEX**: Largest turbines with lowest $/kW through economies of scale
- **Simpler**: No complexity and cost of steam cooling... and designed for plant constructability
- **Most Flexible**: Industry-leading operating flexibility... start times, ramp rates, operating range

5% lower lifecycle cost of electricity ... significant customer validation, building the HA order book
Unsurpassed technology heritage and culture

Global Research Center
- Basic research
- New technology
- Advanced tools

GE Aviation
- Advanced materials
- Analytical tools
- Aeronautical experience

GE Power & Water
- Energy experience
- Reliability and availability
- Industry breadth
“GE will move at market speed and with market intensity. Everything we do must be tied to an outcome. If it isn’t, we should stop doing it.”

–Jeff Immelt
SOFC: Initial commercial product
Design driven by market requirements

- Electrical output: 1-10MW
- 65% Efficiency
- NG Fueled
- Minimal site installation
- Turn down capability
- Low GHG emissions

Market drivers
- LCOE - OpEx
- Energy security/reliability
- Corporate social responsibility
- Grid support
- T&D deferral

Clean reliable on-site energy
The FastWorks Framework

Experiment...learn...iterate

1| Problem statement
Define customer problem ... long term vision to solve

2| Leaps of faith
Identify assumptions that need to be true to achieve vision

3| MVPs
Build series of tests to validate assumptions

4| Learning metrics
Identify and track leading indicators ... validate learnings

5| Pivot or Persevere
Adjust strategy based on validated learnings
Oil & Gas: Differentiated technology - winning on the most advanced projects

Shell Prelude
World’s 1st floating LNG

GE content
• First compressor trains for FLNG
• Innovative flexible riser design
• Customized offshore cryogenic valves

Applying proven GE technology and expertise to deliver transformational solutions
Differentiated technology and services: Innovation in deep water drilling

20k psi BOP

Industry first ... access to 20K PSI and 350°F reservoirs

Asset lifecycle management

SeaONYX™ controls
Bringing GE Mark VIe to Drilling

SeaLytics BOP Advisor™
Troubleshooting and Maintenance Management

Data-enabled services
• Equipment baseline modeling
• Condition based maintenance
• Rig-based re-certification
• Digitized asset history

Increased reliability
Reduced downtime
Transportation: Evolution Series Tier 4

No after-treatment avoids $1.5 billion in infrastructure & operating costs

Reduce NOx and PM emissions by 70%

Launching robust service support plan at launch

New Exhaust Gas Recirculation (EGR)

Increased cooling system capacity

Base engine improvements

New variable speed auxiliaries

New engine control unit and power supply
Revolution™ CT – Platform for the future with uncompromised clinical performance

Key GRC technologies
Image Reconstruction:
• Wide Cone
• SnapShot Freeze™
Spectral Imaging:
• Gemstone™ Detector
• Pierce Tube

Clinical / Patient Value
Dose conscious:
• Routine low radiation dose
• Potential for reduced contrast media
Clinical benefits:
• 1-beat cardiac ... gateway to intervention
• Tissue characterization ... “non-invasive biopsy”
A biological factory
Industrialized and automated for cell therapies

- Advanced manufacturing for healthcare
- Enable widespread adoption of cell therapies
Major trends

Industrial Internet
- Domain knowledge
- Advanced analytics
- Software platform (Predix)

Open innovation
- Technology acceleration
- Innovating with customers
- Collaboration ecosystems

Advanced Manufacturing
- Design innovation
- Manufacturing innovation
- Materials innovation

☑ Industrial data growing at 2X other data
☑ Most complex data sets
☑ New paradigm = manufacturing technology + materials innovation
☑ Digital thread
Industrial Internet - Rise of the machines

What happened when 1B people became connected?

Redefining business models:
- Ads
- Entertainment
- Retail

Consumer Internet

What happens when 50B machines become connected?

Redefining productivity:
- Employees
- Assets
- Systems

Industrial Internet
Industrial Internet
Machines + Sensors + Connectivity + Cloud + Analytics

Engines + locomotives + MR machines + appliances + wind turbines + ....

Power of 1% - $300B saved over the next 15 years
Predictivity + aviation

Impact of Unplanned Downtime

- Air turnbacks are costly
- Airline industry maintenance cost for delays & cancellations

$45MM per day
- Loss per cancellation or diversion: $25K - $100K
- Loss per delay: $6K - $8K

Benefits of Predictive Maintenance

- Effective workforce & reduced maintenance costs
- On-time performance
- Customer satisfaction
Advanced Manufacturing...why now?

The **PHYSICAL** and **DIGITAL** worlds are converging ...

Hardware Meets Software  
Agile Manufacturing  
New Ecosystems

Technology enabling disruption
Advanced manufacturing ... what’s next?

- Model based enterprise – Digital thread throughout the entire product lifecycle ... create a “self-improving factory” that never stops

- Advanced tools ... high performance computing and additive technologies to revolutionize materials and manufacturing process innovations

- Data and advanced analytics to take product development, speed, performance and reliability to new heights

Rise of small, nimble, adaptable supplier base
Spreading technology across GE

Materials & modeling
- Composites
- Coatings
- Metal alloys
- Computational fluid dynamics

Imaging & analysis
- Digital X-ray
- Eddy current
- Phased array ultrasound
- Optical metrology
- Image processing
- Thermo-graphy

Aviation
Healthcare
Energy
Water
Oil & Gas
Wind
GE Research + Businesses = Innovation Works

Global Research

Idea/Discovery  Feasibility  Tech transfer  NPI  Product maturity

Technology effort

Additive Repair Technologies  HV DC  SiC Power Electronics  Molecular Pathology

GE Businesses

Fiber Optics Boroscope  Ceramic Matrix Composites  Wind Turbines and Batteries  NextGen Blades  Tier IV Locomotives

Partners in innovation