PV Validation and Bankability Workshop
August 31, 2011

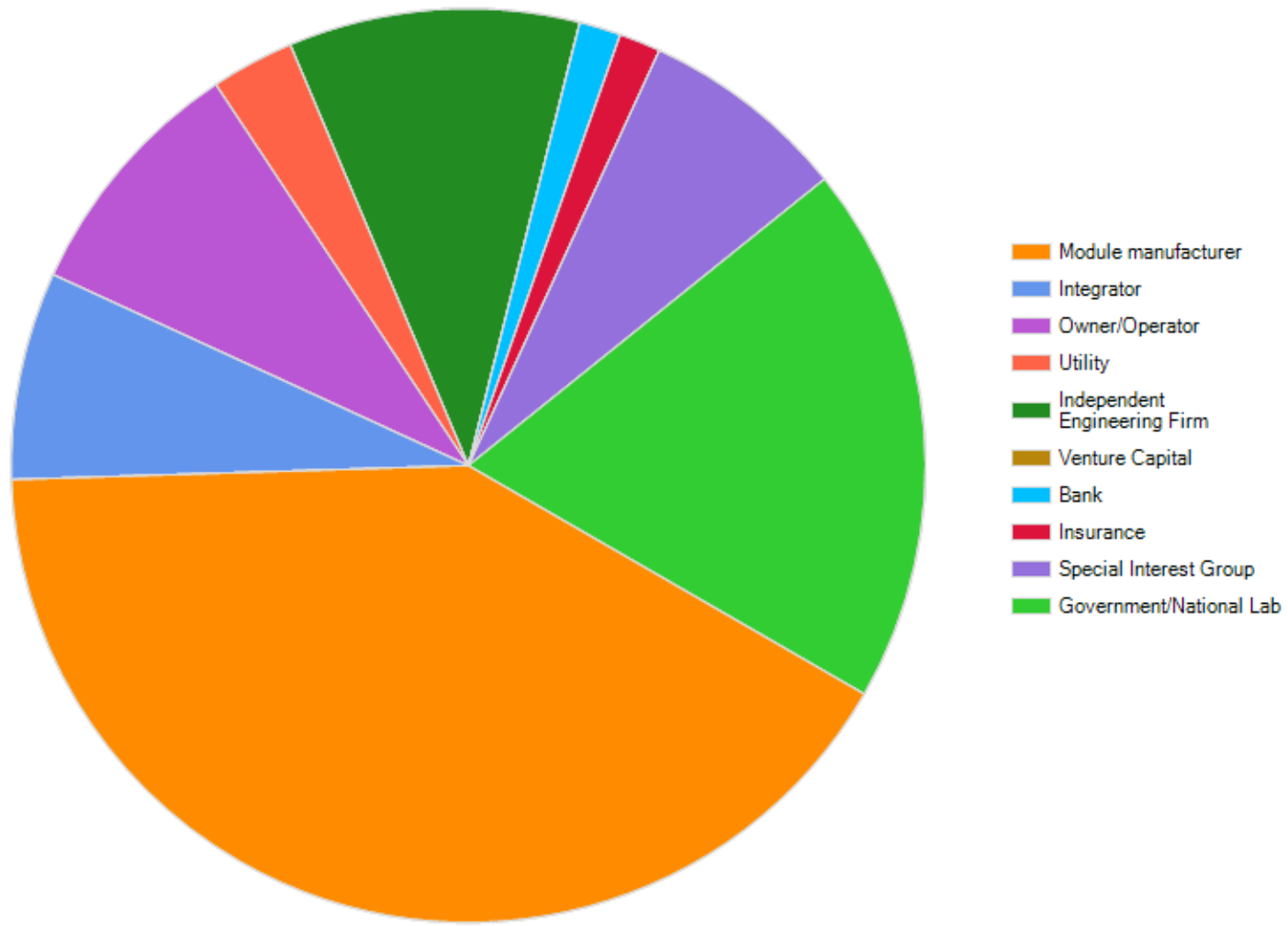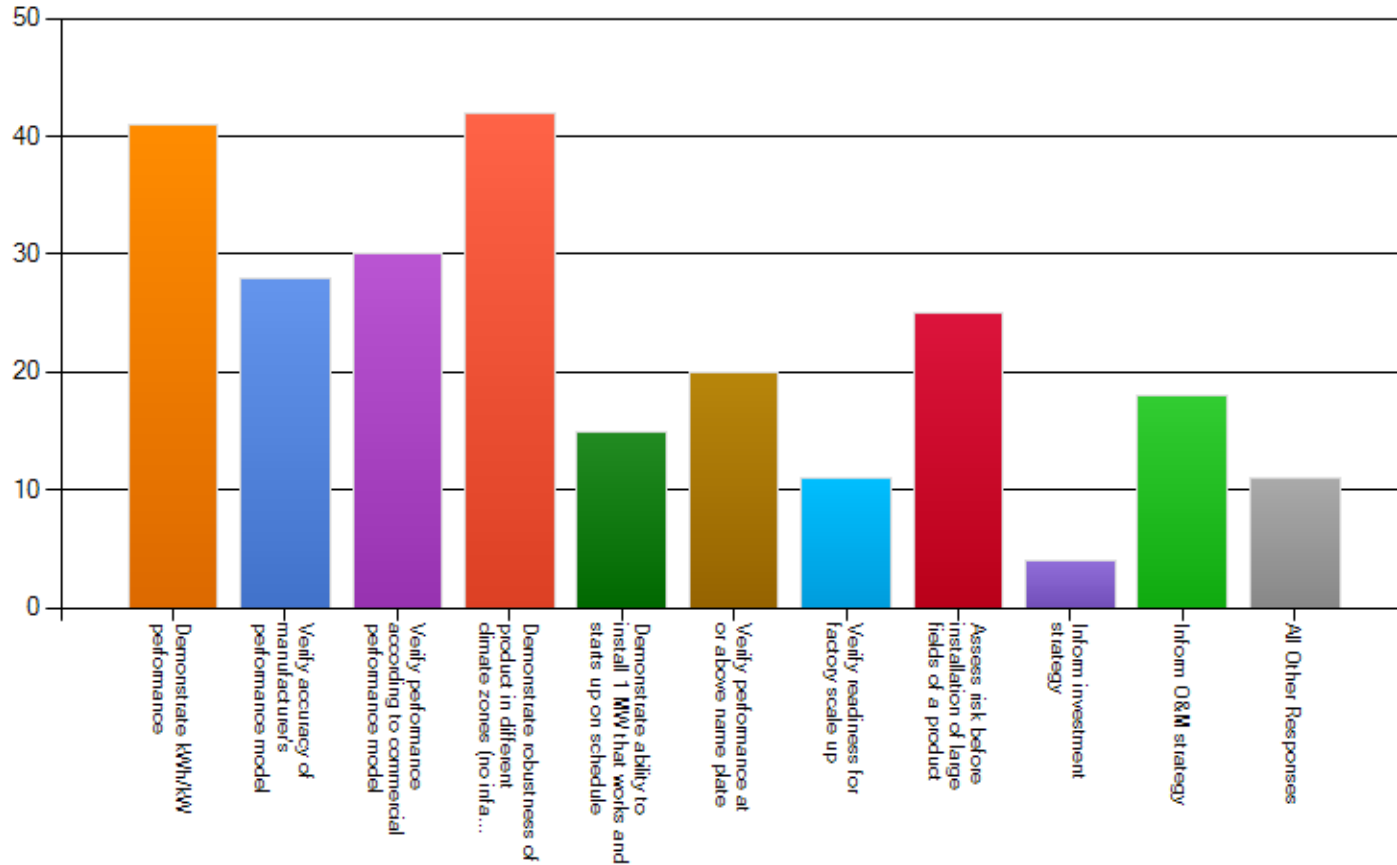# Survey Results
As of August 29, 2011

- What is your market sector?
- From product development through product launch, data must be collected at each step. If the Department of Energy can identify funds to provide some type of 3rd party validation/verification effort/study, what would be your priority for that effort?
- What scale of module/system data is of interest and of use in making decisions in your market sector?
- What type of module/system analysis is of interest and use to you?
- What is the performance data set desired?
- What is the weather data set desired?
- What is the most useful collection frequency for automated system data?
- What periodic DC testing is useful and of interest?
- What is the reliability data set desired?
- Data/analysis type of interest
- What is the minimum total installed capacity with this level of data to be useful for your purposes?

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Market Sector

What is your market sector?

Legend:
- Module manufacturer
- Integrator
- Owner/Operator
- Utility
- Independent Engineering Firm
- Venture Capital
- Bank
- Insurance
- Special Interest Group
- Government/National Lab

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From product development through product launch, data must be collected at each step. Some of this data collection is internal to the company; other data are shared with investors and may benefit from having some element of 3rd party validation. If the Department of Energy can identify funds to provide some type of 3rd party validation/verification effort/study, what would be your priority for that effort? Please identify your top four priorities.
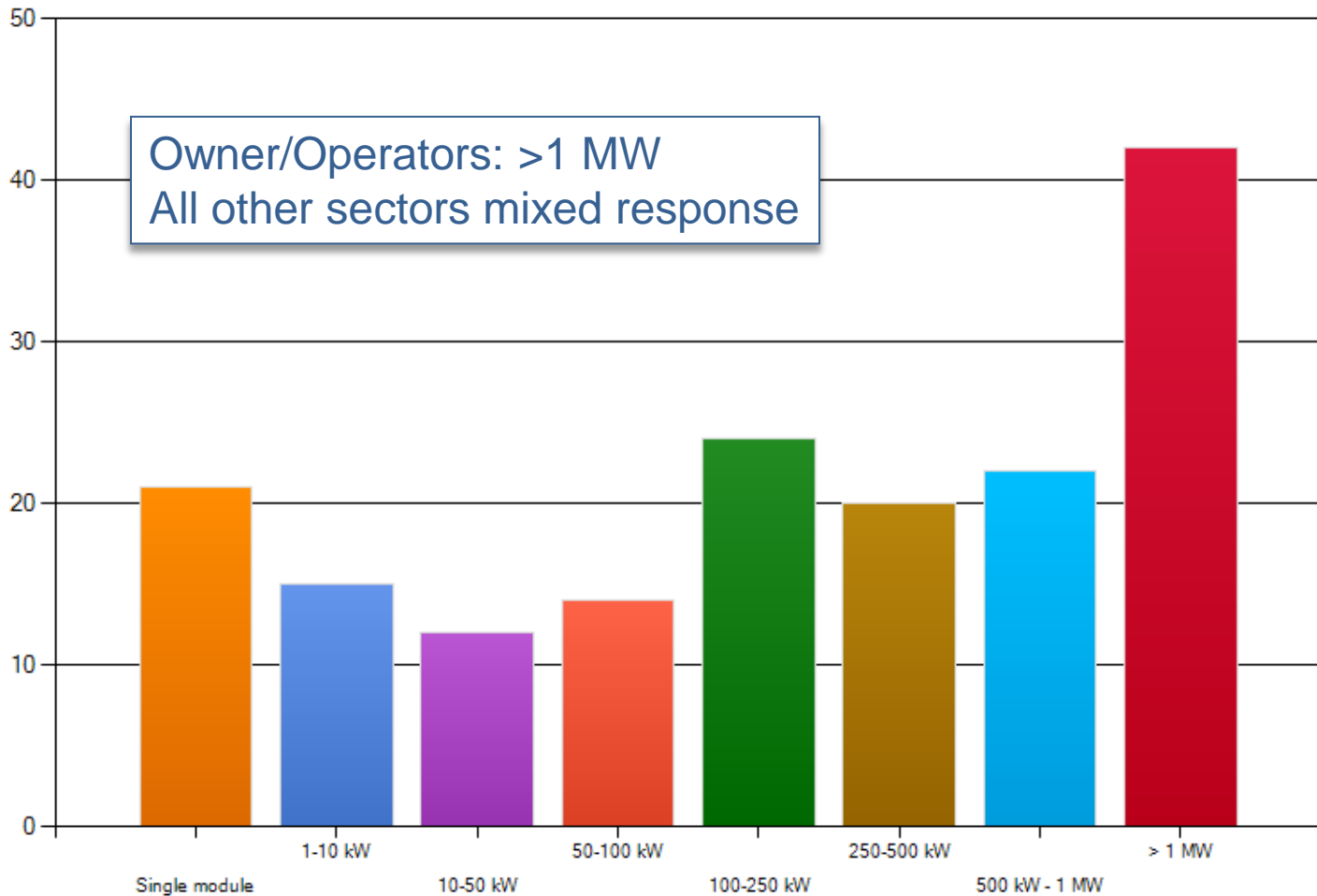
Other:

- Demonstrate kWh/kW performance over time in different climate zone (estimate whole system degradation and include effects of thermal cycling, snow/ice, particulates, even insects and not just on modules).

- Demonstrate Long-term Reliability

- Demonstrate Performance Index of actual / predicted

- Design / Systems Integration, O&M support

- Extended life testing

- Financing of med. sized projects with higher risk technology

- Standard Commissioning Procedures

- Understand long-term degradation, understand epidemic failure risk

- Verify module long term durability
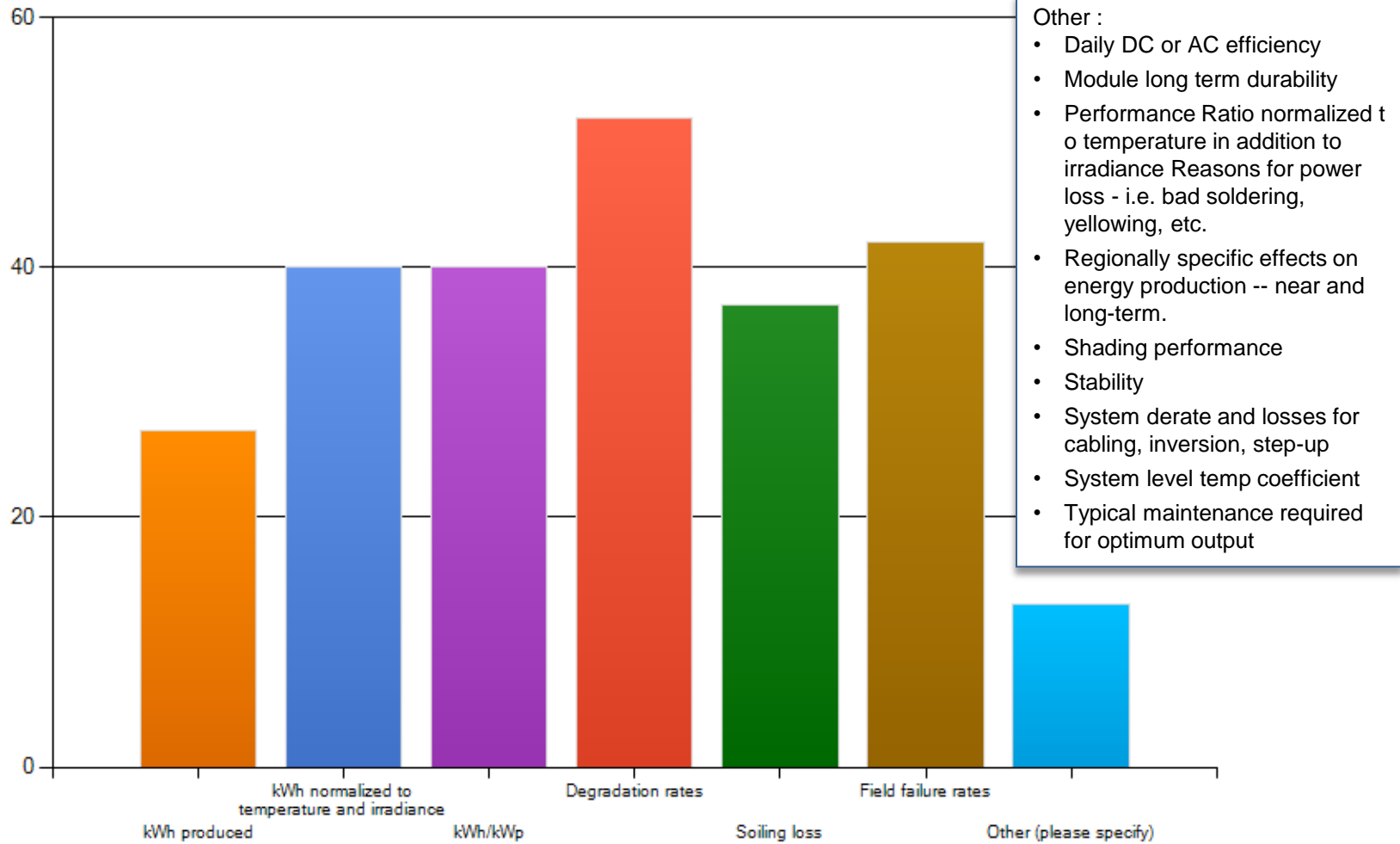
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What scale of module/system data is of interest and of use in making decisions in your market sector?

What scale of module/system data is of interest and of use in making decisions in your market sector? (Check all that apply)
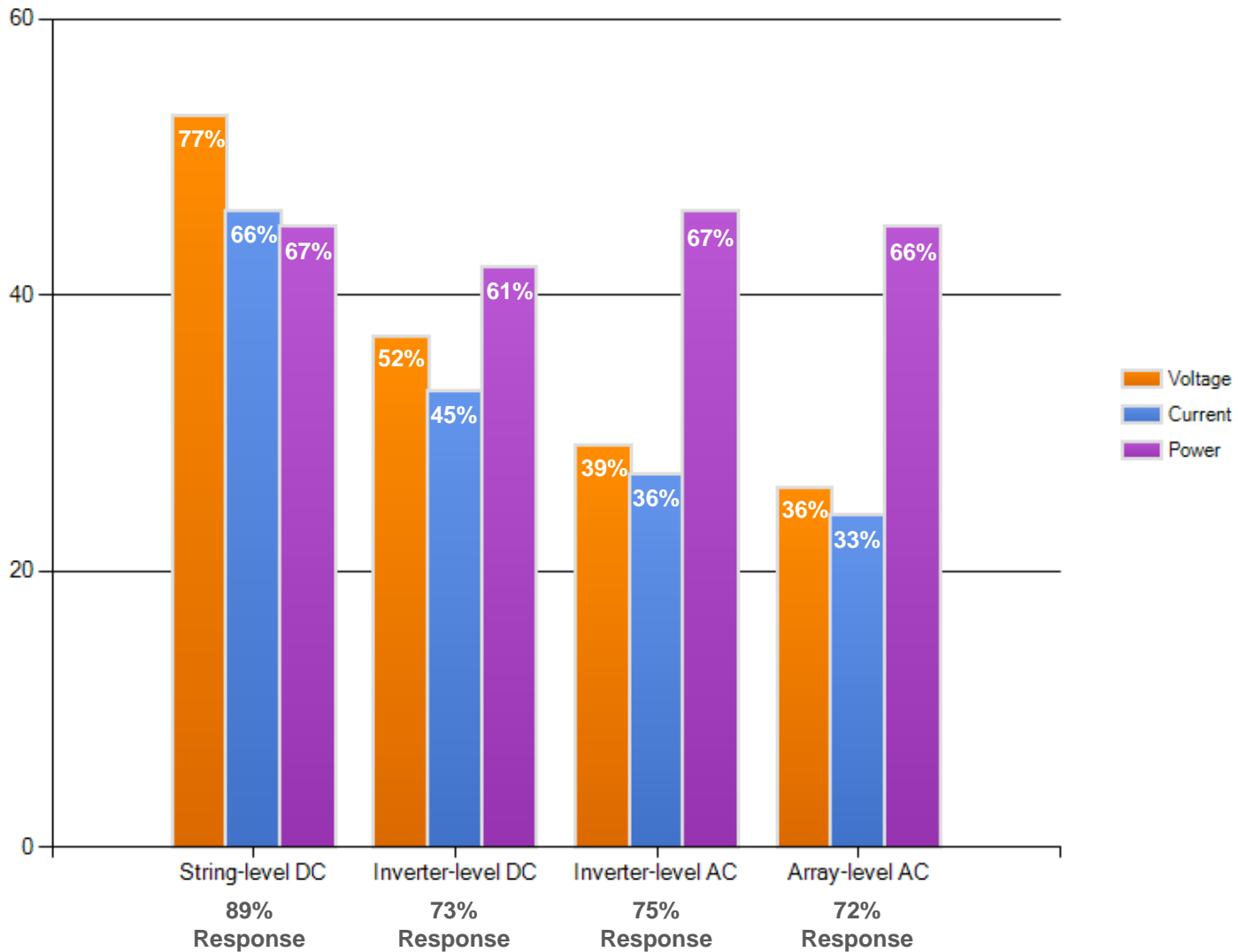
Owner/Operators: >1 MW
All other sectors mixed response

What type of module/system analysis is of interest and use to you?

What type of module/system analysis is of interest and use to you?

Other :
- Daily DC or AC efficiency
- Module long term durability
- Performance Ratio normalized to temperature in addition to irradiance Reasons for power loss - i.e. bad soldering, yellowing, etc.
- Regionally specific effects on energy production -- near and long-term.
- Shading performance
- Stability
- System derate and losses for cabling, inversion, step-up
- System level temp coefficient
- Typical maintenance required for optimum output

Chart categories: kWh produced, kWh normalized to temperature and irradiance, kWh/kWp, Degradation rates, Soiling loss, Field failure rates, Other (please specify)

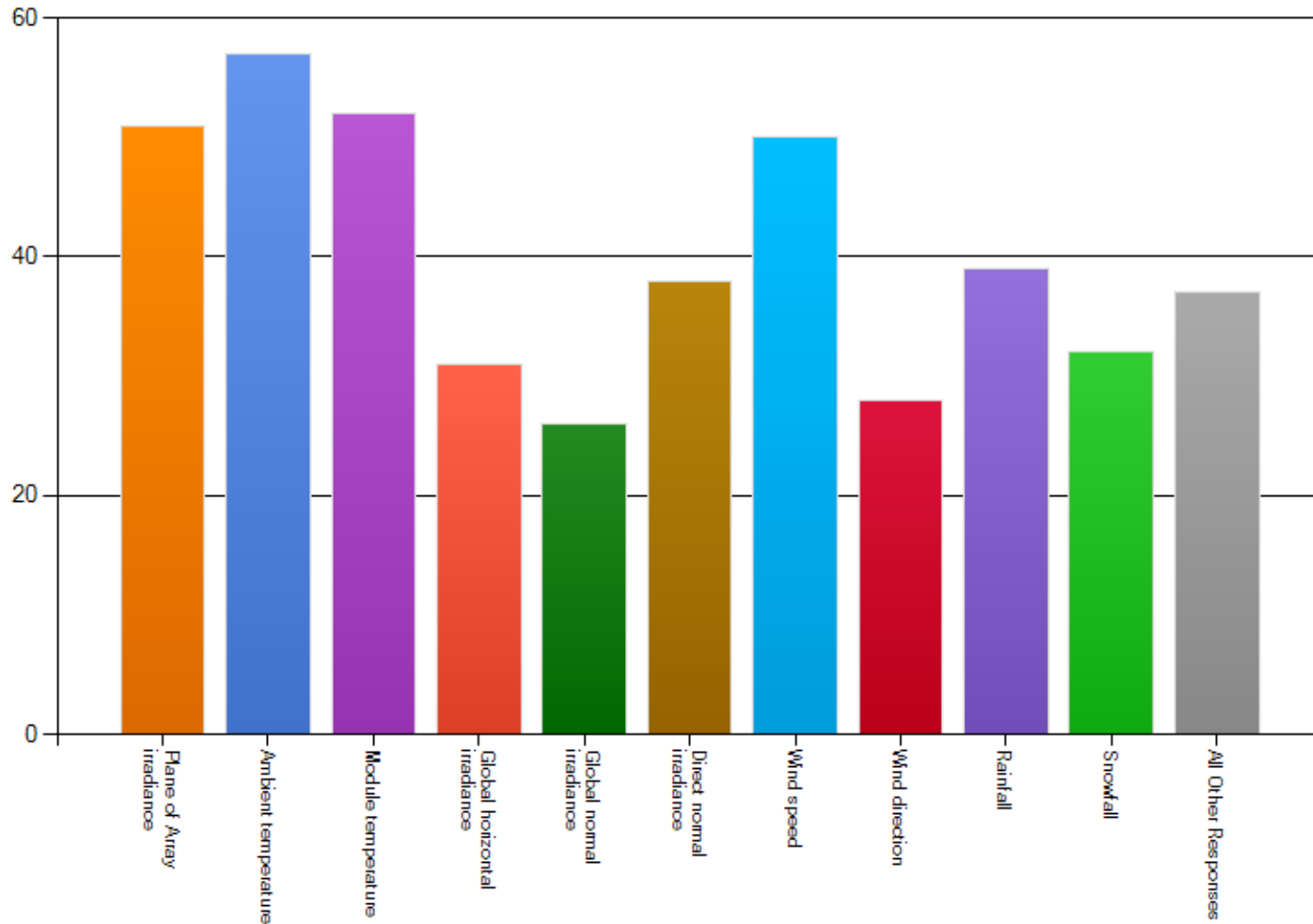# What is the performance data set desired?

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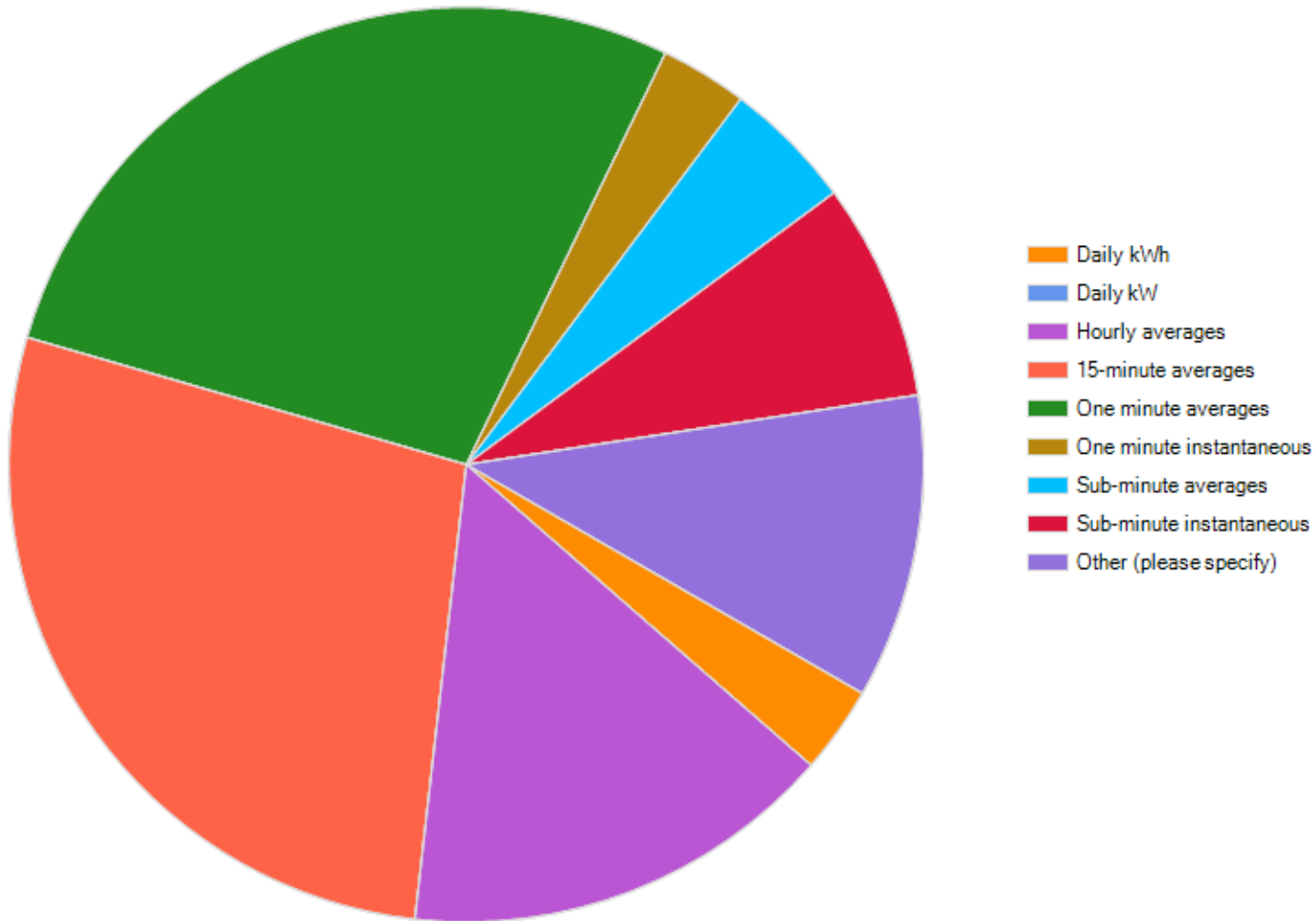
What is the weather data set desired?

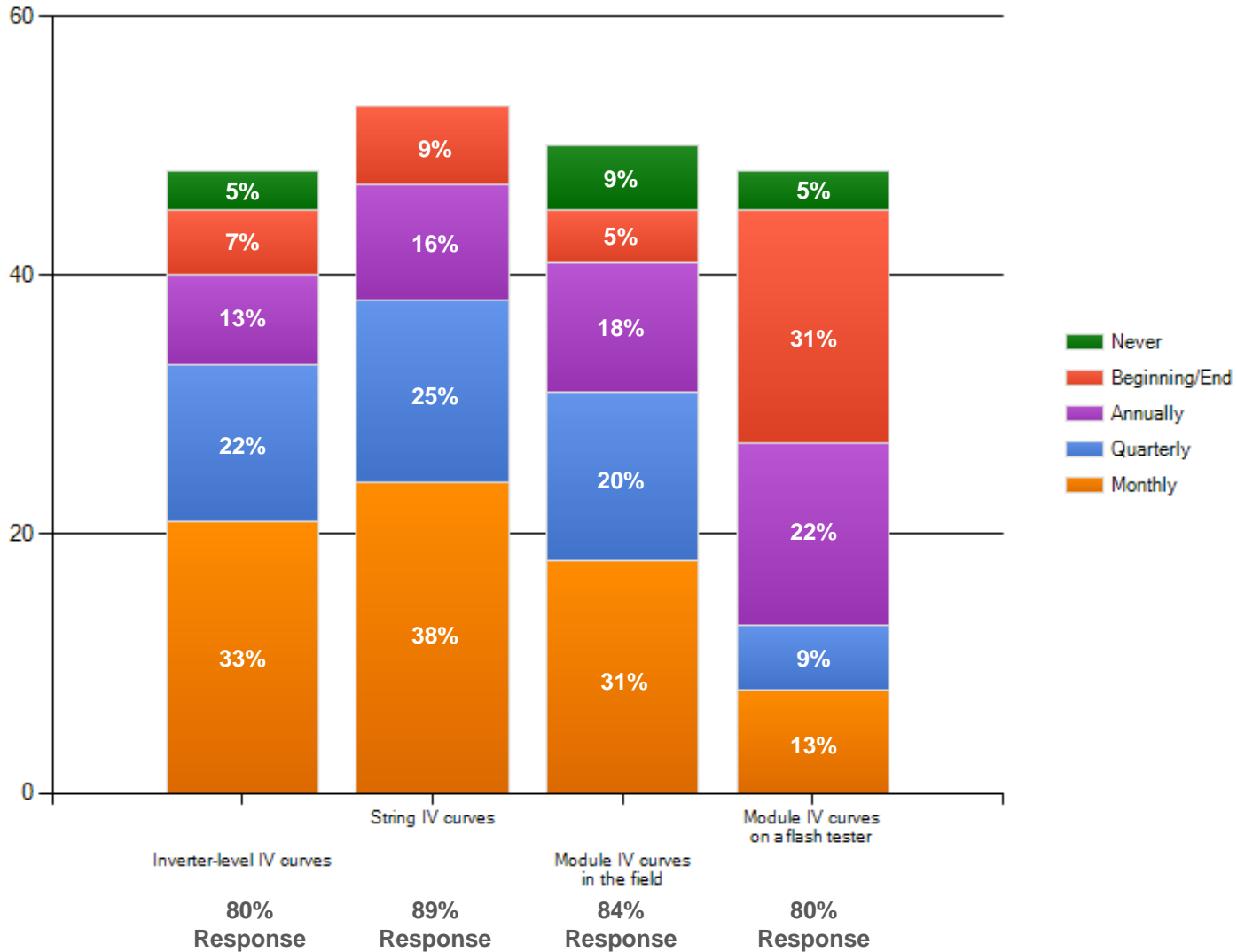What is the weather data set desired? (Check all that apply)

What is the most useful collection frequency for automated system data?

What is the most useful collection frequency for automated system data?

Legend:
- Daily kWh
- Daily kW
- Hourly averages
- 15-minute averages
- One minute averages
- One minute instantaneous
- Sub-minute averages
- Sub-minute instantaneous
- Other (please specify)
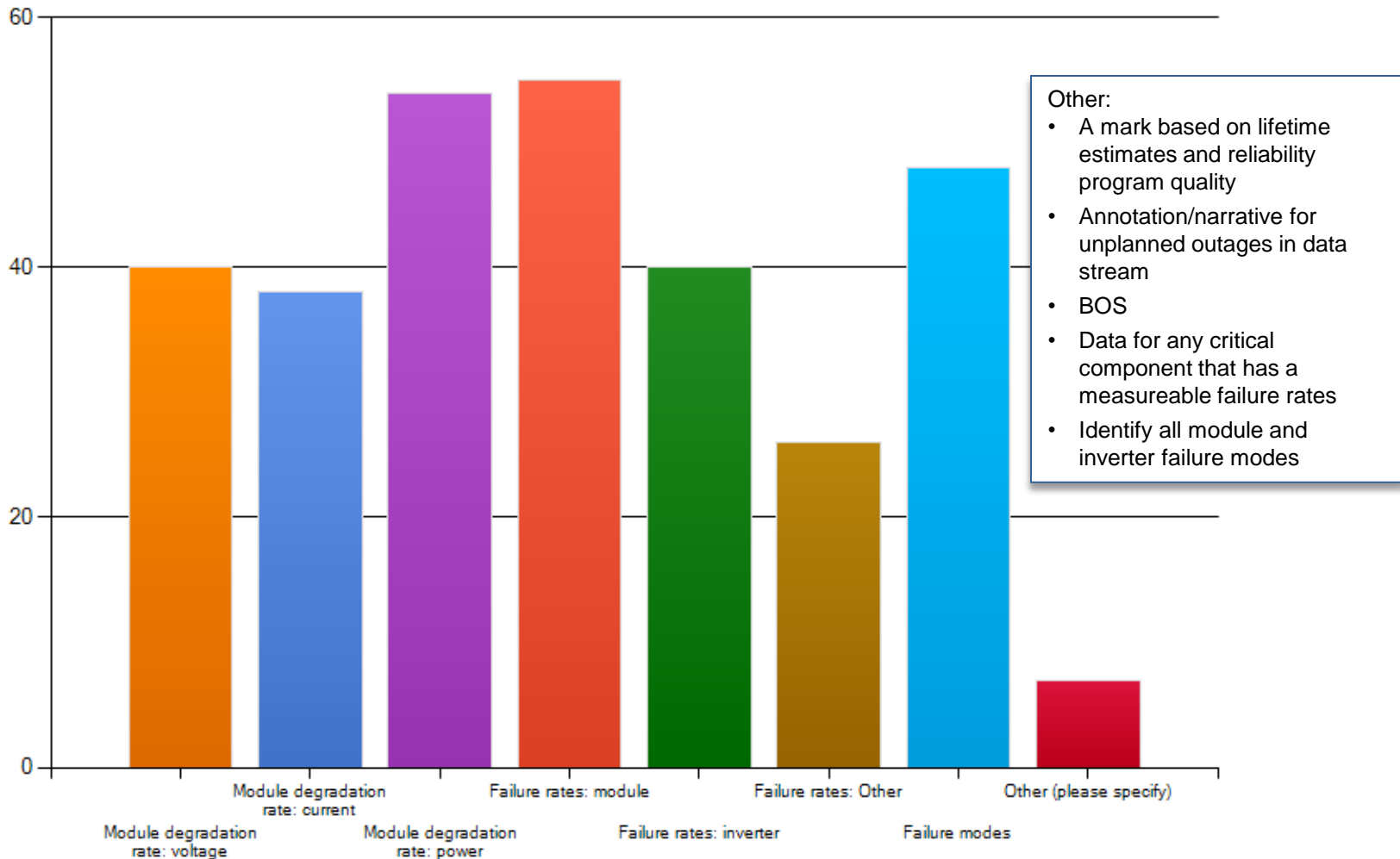
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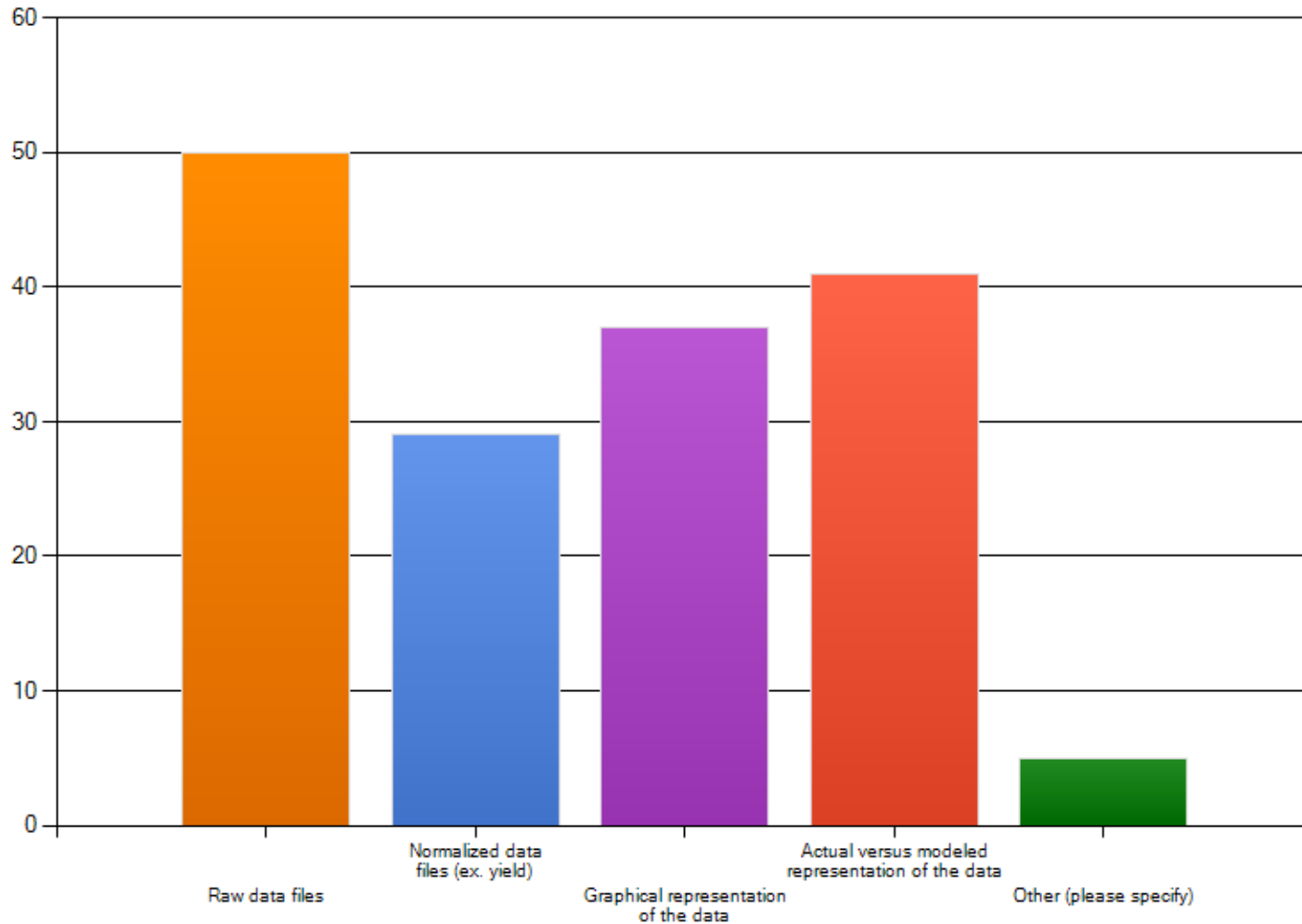# What periodic DC testing is useful and of interest?

What periodic DC testing is useful and of interest?

What is the reliability data set desired?

What is the reliability data set desired? (Check all that apply)

Other:
- A mark based on lifetime estimates and reliability program quality
- Annotation/narrative for unplanned outages in data stream
- BOS
- Data for any critical component that has a measureable failure rates
- Identify all module and inverter failure modes

Are you interested in:

What is the minimum total installed capacity with this level of data to be useful for your purposes?

What is the minimum total installed capacity with this level of data to be useful for your purposes?

Legend:
- < 50 kW
- 50-100 kW
- 100-250 kW
- 250-500 kW
- 500 kW - 1 MW
- > 1 MW
- Other (please specify)

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