**Part 2**

Well first I would need to investigate and learn a lot more about these solar systems.  
For instance I would like to know things like:

* Approximate total installations around the world
  + Break downs per area, city, etc.
  + E.g. Ideally you would like to know where there are areas with high volumes of installations
* The scope of data/metrics collected for each of these systems
* Details around the tech in these installations and using the APIs. E.g. Do you need to be within some short proximity or directly connected to the installation or are these systems already leveraging local Wi-Fi and internet?

Assuming that these solar installations had internet connectivity, I would suggest more of a push or reporting model for the channel data versus pull/fetch. On some sort of interval each installation would report its data. For instance there are tools I've used like CollectD for collecting all kinds of server metrics. Lightweight clients and config (and Python scripts) are installed on each system and metrics are sent over UDP (low overhead). The basic premise is metrics data is sent on regular intervals (configured so they don't impact server performance) and pushed to collection servers where data can be aggregated and stored in a DB, data warehouse, cloud infra, etc. I’ve seen this work very efficiently for thousands of systems at EMC. Ultimately that would be a lot more efficient than fetching large amounts of data, even if the intervals were staggered. Ideally all this channel/other data from the field would trickle in and be stored where it could be analyzed, reported, etc. Collection servers could be setup in different areas/sites/data centers, especially high volume areas. Without knowing more about the true scale of installations, I’m not sure what the ideal way to store all this data would be, but there would be a lot of advantages to having it available in the cloud.

From a smaller scale (say just monitoring a single installation) I foresee a very chromatic dashboard web interface coupled with mobile app offerings where both Aurora employees and homeowners could monitor their installations. You could also potentially have homeowners use their own Wi-Fi networks or Bluetooth to connect to their installations directly. Companies like DirecTV do some very similar actions, like sending various satellite and usage metrics and also providing apps where customers can connect directly to DVRs and other DTV devices on their home networks. I think having various mobile app (e.g. Android, iOS, etc) support would be key. I could also foresee some potential partnerships with home security, and other home systems like Amazon Echo, Samsung SmartThings, etc. Like it would be great to be able to monitor your power consumption along with your solar energy production and perhaps adjust things around your house (like lighting, appliances, etc.).

As far as monitoring specifically, thresholds could be established, where alerts could be triggered for issues. Maybe data is also reported on real times events (like a battery charge dropping too low). I could foresee users wanting to know how efficient the solar installation is at all times. Reports, graphs, pie charts, and these sorts of things could be used to display all these metrics for easier consumption. For instance I’m sure time of year affects how much sun is available and therefore the quantity of solar energy collected. These types of trends would be very interesting to both homeowners and Aurora engineers/technicians/other.