

Ramco Cements Limited (RCL) Wind Farms propels business forward with Google Maps API for Business



At a Glance

What they wanted to do

- Easily identify and address underperforming turbines to ensure maximum efficiency
- Improve budget and operations planning using wind turbine operation and performance data
- Optimise inventory of spare parts and reduce inventory cost with better visibility over their maintenance equipment

What they did

- Implemented Google Maps API for Business to monitor the performance of all wind turbines more accurately and use the information for operational and business planning purposes

What they accomplished

- Raised wind farm utilisation and power generation by 10%
- Significantly improved maintenance response time
- Enhanced inventory management and reduced costs

Background

The Ramco Cements Limited (RCL), formerly Madras Cements Ltd, installed its first wind farm in 1993 in the state of Muppandal. Part of the Ramco Group, RCL today operates one of the most technologically advanced wind farms in India, with over 200 state-of-the-art wind turbines totalling close to 160 MW in capacity. Located in the states of Tamil Nadu and Karnataka in Southern India, the wind farms provide electricity to Ramco Group's manufacturing subsidiaries and Tamil Nadu Electricity Board.

Challenges

As the farms were built in different years, RCL was saddled with multiple maintenance strategies for the different turbine ages. RCL already had a powerful Enterprise Resource Planning ([Ramco ERP Solution](#)) system. For example, wind turbines from the same manufacturer, specifications and similar locations sometimes showed highly disparate performance, which should not be the case.

RCL sought a mapping solution that would integrate with their legacy system and provide enhanced visibility over operations and performance of each wind turbine.

The company also wanted to effectively leverage rich data such as total energy generated, metered electricity and turbine downtime for more informed business planning.

A V Dharmakrishnan, CEO of RCL says, "To achieve efficiency in India's competitive and emerging renewable energy market, we needed to standardise work processes and a centralised platform for managing and monitoring wind turbine performance. We also needed to gain insight into the performance data to help drive productivity and efficiency."

"Google Maps allows us to customise and extend visualisation well beyond simple charts and tables. The new solution shows us entirely different insights that we can now utilise to develop and support management's market strategy plans. In fact, Google Maps has offered us the extra boost of confidence we needed to implement plans for long-term success."

—A V Dharmakrishnan, CEO of Ramco Cements Limited

Solution

RCL chose Google Maps API for Business to plot the location of the 229 wind turbine locations, and integrate this to their ERP system. Using a colour coding system, RCL ranks the performance of each windmill according to the amount of power generated. The ranking system allowed a clear and visual presentation of the wind turbines' performances relative to one another.



Figure 1. An overview of MCL wind farms' locations plotted on Google Maps API for Business

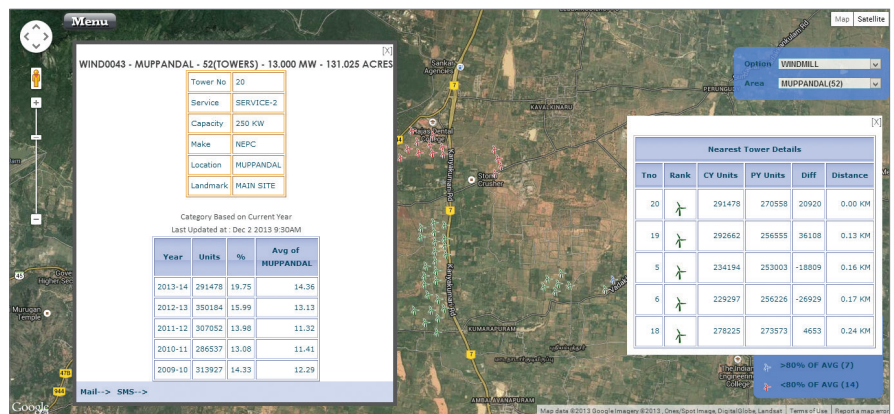


Figure 2. An example of RCL wind turbine generation details

Similar turbines located within the same area should be able to produce roughly the same amount of electricity at any one time. Through a single Google Maps dashboard, any turbine that is not performing at optimal levels can be quickly identified and rectified. This is an important insight that helps RCL drive better turbine efficiency and output levels.

Google Maps has also provided a clear visual representation of key operational and performance parameters of the turbines. Data from the mapping solution can now be shared with the OEMs, allowing RCL to conduct more productive discussions around operational efficiency improvements. For example, when the amount generated by a windmill decreases over time, relative to other windmills in the area, RCL will request technicians to look into any issues and rectify them.

"We leverage and analyse data such as the turbine's age, location, original equipment manufacturer, power generation and turbine downtime to optimise production efficiency. With Google Maps, we also closely monitor our wind farm perimeters and ensure that competitors do not encroach into our area," says Dharmakrishnan.

Results

Google Maps displays the location of all wind turbines against their performance and operational data, giving them immediate visibility into whether the turbines are functioning at maximum capacity. This real-time performance monitoring allows RCL to make quick and informed decisions to ensure maximum wind farm performance. The performance dashboard can also be accessed on mobile devices, so employees can monitor and take action, even while on-the-go.

RCL ranks the wind turbines based on output and displays this visually on Google Map. This makes it easy to identify turbines that are not performing

About Google Maps API

Google Maps API provides a range of “application programming interfaces”, which allow developers to build with relative ease:

- location-based applications
- mobile apps that work on multiple mobile devices
- applications that enable users to bring data to life by visualising and interacting with geospatial data
- customised maps, incorporating and highlighting data and imagery specific to their organisations’ needs

Google Maps API provides developers with a platform that has the flexibility and power to leverage maps and geospatial data in new and truly innovative ways.

For more information, visit

www.google.com/enterprise/earthmaps/maps-apis.html

as well as they should so that service crew can be immediately assigned to address any issues. Additionally, with Google Maps geo-location services, dispatch teams are able to locate faulty wind turbines more precisely and plan the most effective routes to reach them in the shortest time. Overall, the Google Maps implementation has raised wind farm utilisation and power generation by 10%.

Google Maps has also brought about better inventory management for RCL. Turbine spare parts are stored in various locations and RCL previously did not have an integrated view of inventory levels and locations. Google Maps’ comprehensive dashboard provides a consolidated view of inventory levels and their location, thus making maintenance work more time and cost efficient. Procurement processes are now more streamlined as a result of a more accurate view of when replenishment is needed.

Marketing information such as sales team performance, growth and market share were also pinned to geographic locations, to support RCL’s strategic business planning.

Dharmakrishnan says, “Google Maps allows us to customise and extend visualisation well beyond simple charts and tables. The new solution shows us entirely different insights that we can now utilise to develop and support management’s market strategy plans. In fact, Google Maps has offered us the extra boost of confidence we needed to implement plans for long-term success.”

The visual nature and user-intuitive interface of Google Maps API for Business completely eliminated manual errors in reports, providing RCL with reliable reports that take much less man hours to consolidate.

“Our investment in the wind farm business strongly supports our vision to provide clean and eco-friendly energy. Google Maps has just made it a stronger business case for us to remain committed to this endeavour,” concludes Dharmakrishnan.

