



RDF Grant Project Briefing for

Xcel Energy RDF Advisory Group

April 12, 2016





Agenda



1. Project Description
2. Related Solar & LED Projects
3. Terminal 1 Electric Use & Demand
4. RDF Project Benefits
5. Questions & Discussion





RDF Project EP4-13

MSP Airport Solar Project



Location: MSP Terminal 1 Blue parking ramp
Size: 1,471 kW DC or 1,008 kW AC
Equipment: tenKsolar XT-A, 410-volt panels
Energy output: 1,453,036 kWh
Total Cost: \$7,577,895
RDF Grant: \$2,022,507

Unique Elements:

- *9-foot clear structural canopy
- *Marketing-sponsorship agreement
- *Financing without tax credits; 100% Qualified Energy Conservation Bonds@ .075%





RDF Project Leverage



Additional solar PV on Terminal 1 Red Ramp

Size: 1,539 kW DC or 1,224 kW AC

Annual output: 1,764,401 kWh

LED lighting upgrade in four parking ramps

7,200 halide fixtures replaced

4 additional EV charging stations





Estimates of solar capacity and production

	kWh
MAC 2015 Electricity Use - T1	114,964,473

	% of total T1		
	Parking Ramp		Year 1
	DC (kW)	AC (kW)	Solar Capacity Production (kWh)
Red ramp solar nameplate	1,539	1,224	55% 1,764,401
Blue ramp solar nameplate	1,471	1,008	45% 1,453,036
total solar production capacity in AC		2,232	3,217,437 *

* MAC/Ameresco Measurement & Verification Agreement guarantees the collective output of Blue and Red ramps solar

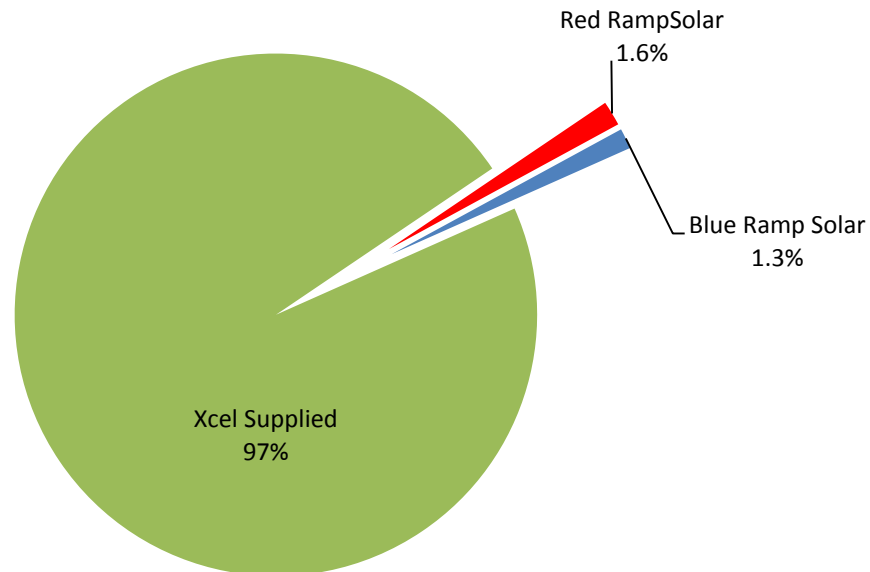




Solar PV Impact on T1 Annual kWh

MAC Terminal 1 2015
Electric Use
114 million kWh

T1 includes terminal building and
parking ramps





Energy and Demand Reductions

Blue Ramp Solar: 1,453,036 kWh

Red Ramp Solar: 1,764,401 kWh

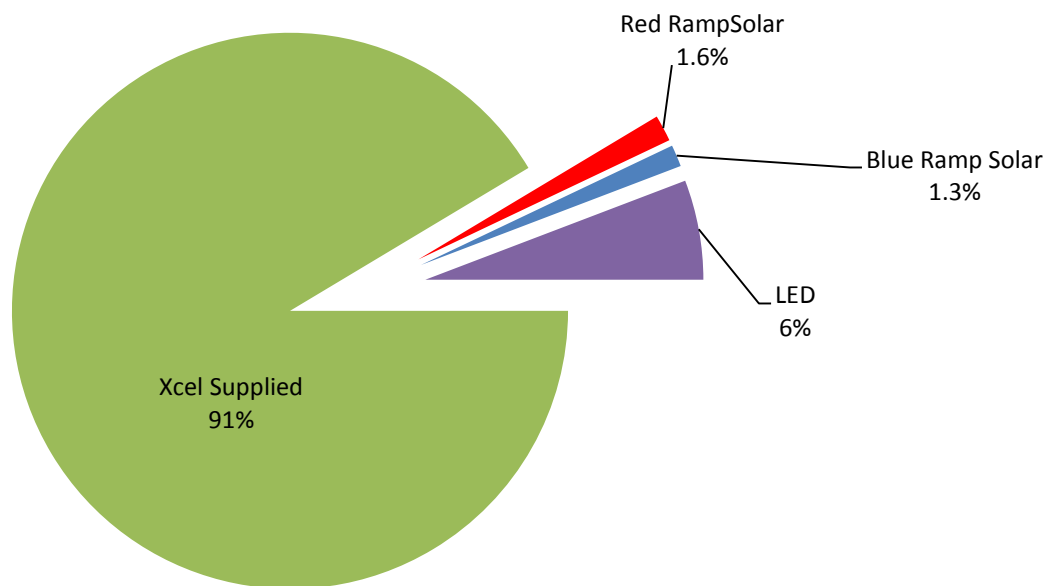
LED energy savings: 6,600,000 kWh

Total peak demand
reduction: 1,000 kW





Solar & LED Impact on T1 Annual kWh

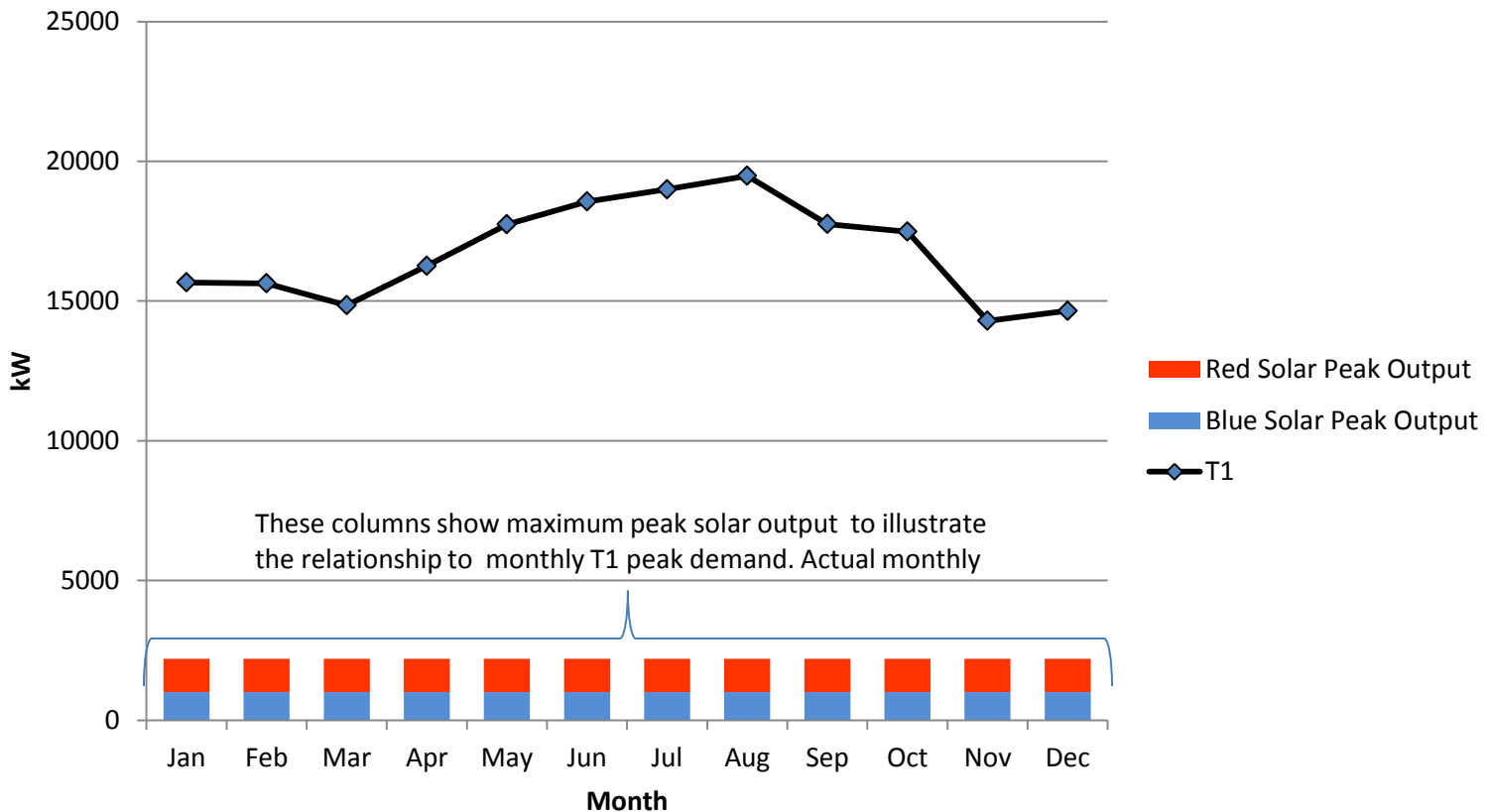




Solar Capacity Impact on Meeting Peak Demand



T1 Monthly Peak Demand in 2015





Project Benefits-Economic



Jobs Created: 253 direct, in-direct at tenKsolar

Sales tax and property tax exemption for MAC

\$380,759 per year in energy cost savings total projects

\$10 million NPV saved over 30 years





Project Benefits-Environmental



Reduction of 6,813 tons annually in GHG

Equivalent of 1,434 fossil fuel vehicles off the road for a year

Solar energy visibility for 35 million people pass thru MSP annually





Project Benefits-Ratepayers



Leverage of RDF funds for \$25.4 million in energy projects

Reductions in peak demand at Terminal 1

RDF grant reimbursement at project completion

Visibility for Xcel Energy at MSP and 35 million passengers/year

Reinforces working relationship between MAC and Xcel





Thank you!

Discussion and Q & A

Project funding provided, in part, by customers of Xcel Energy through a grant from the Renewable Development Fund.

