Powering Michigan’s Energy Future

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DTE Energy
Who is DTE Energy?

**Regulated Utilities**

~75% of DTE Energy’s 2009 Earnings

**Detroit Edison**
- Electric generation and distribution
- 2.1 million customers
- Fully regulated by Michigan Public Service Commission (MPSC)

**MichCon**
- Natural gas distribution
- 1.2 million customers
- Fully regulated by MPSC

**Complementary Non-Utility Businesses**

~25% of DTE Energy’s 2009 Earnings

- **Gas Storage and Pipelines**
- **Power & Industrial Projects**
- **Unconventional Gas Production**
- **Energy Trading**
Detroit Edison’s renewable energy efforts are in support of Michigan’s RPS Legislation

- 10% of retail sales, using Renewable Energy Certificates
- New capacity requirements for Detroit Edison
  - 300 MWs by 2013
  - 600 MWs by 2015
- Must be Michigan based

Qualifying Technologies

- Wind
- Solar
- Biomass
- Water
- Some Co-Generation
Detroit Edison RPS Portfolio Plan – Forecasted Spending

RPS investments under Detroit Edison’s renewable energy plan projected at $2B over 20-year plan

**Detroit Edison-Owned**
- ~500 MW of wind assets
- **15 MW of Detroit Edison-owned solar pilot program**
- Equivalent of 29 MW of co-firing renewable fuels in existing generating facilities (e.g., displaces non-renewable fuels)

**Contracted (PPA & REC purchases)**
- ~500 MW of purchases from third parties over the 20 year program. Majority will be sourced from wind turbines
- 5 MW customer-owned solar pilot program
Detroit Edison-Owned Solar Pilot Program

- 15 MW in total nameplate capacity
- $112 million budget over 5 years
- Sited on large rooftops, ground-mounted or on DTE Energy facilities
- Using standard site easement agreements
- Purpose of pilot program is to gain knowledge and experience
- Multiple technologies
- Physical and process integration with distribution system operations
**Project Development Process**

- **Select Customer** – Through a Solicitation of Interest or an Economic Development opportunity

- **Negotiate site easement agreement** with customer and conduct Initial Site Feasibility Assessment of - (3-5 Months)

- **Engineer, Procure and Construct (EPC)** project - (6-8 Months) provided by Nova Consultants, Novi, Michigan
Considerations for selecting the customer/site

- Available space
- Location (roof vs. ground mounted)
- Consideration of visibility in the community, either through location, significant visitor traffic, education or community outreach
Ground mounted examples

Monroe County Community College
  - Array size 513 kW DC
  - Approximately 3.3 acres
  - 2,280 Schott PV modules
  - A123 Systems 500 kW grid-supported battery system

Ford Wayne Assembly Plant
  - Array size 502 kW DC
  - Approximately 4.1 acres
  - 2,231 Schott PV modules
  - Xtreme Power 750 kW grid-support battery system
Roof mounted example

Blue Cross Blue Shield
- Nominal 200kW Array size
- Approximately 30,000 square feet
- ~800-900 PV modules
First site on DTE property in Scio Township

- Replaced project that was constructed in 1996
- 40 kW of fixed mounted
- 20 kW of single-axis tracking
Negotiate Site Easement Agreement

Basic Terms and Conditions

• 20 year agreement.
• Remain full-service bundled electric customer for the 20 year term.
• Up-front Construction Payment and an Annual Easement Payments.
• Removal/Relocation cost for early termination.
• DTE owns the Electric Energy and the Renewable Energy Credits (RECs) generated from project.
Engineer, Procure and Construct (EPC)

- Site survey and feasibility study
- Design

concrete ballasts
GM PV Solar Project Under Construction

- Nominal 500kW PV solar array (actual will be 516kW)
- Approximately 264,000 square feet (6.06 acres)
- Approximately 4,032 Sharp rigid thin film PV modules
- Ballast and racking, ground mount installation
- 1 Satcon PowerGate Plus 500kW inverter supplies AC power to step-up transformer
- 1 Cooper step-up transformer will provide medium voltage (13.8kV) to GM’s medium voltage distribution system, in Substation #3.
Educational Kiosk Features

• 32” Monitor with video on solar basics

• 19” Monitor with web based monitoring of the project

• Solar panel sample

• Solar messaging
LOAD|watch - Energy Monitoring Service

Website Features

1. Aggregate of all DTE Energy-owned solar sites
2. Each installation will have its own page with project description.
3. Real-time and historical data will be displayed.
4. Data displayed:
   - Current Output (MW)
   - Energy Production (kWh)
   - Carbon offset values

www.dteenergy.com/dtesolar