

Intermittency Analysis Project:

2010 Accelerated and 2020 Scenarios

Dora Yen-Nakafuji,
Commission Project Manager

Kevin Porter,
IAP Team Lead

CEC PIER Staff Workshop
February 13, 2007
Sacramento, CA



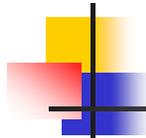
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Agenda

- 9:00-9:15 am Welcome & Introductions – *Yen/Porter*
- 9:15-9:45 am Transmission Planning: CalISO Perspective – *Gary DeShazo*
- 9:45-10:15 am Wind Turbine Technologies – *BEW Engineering*
- 10:15-12:00 Transmission Simulation – *DPC Team*
- 12:00-1:15 pm Lunch
- 1:30-4:30 pm Projected 2010 Accelerated and 2020 Impacts – *GE Team*
- 4:30-5:15 pm Discussions, Q&A – *All*
- 5:15-5:30 pm Next Steps & Feedback – *Yen/Porter*

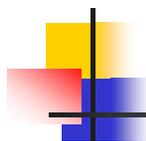


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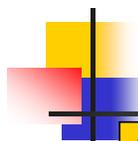
IAP Objectives

- Focus on statewide transmission planning options to meet policy
- Focus on providing quantitative impacts (pros & cons) of various options on transmission reliability, congestions and mix of renewable technologies
- Develop tools and analysis methods to evaluate renewables along with conventional generation
- Provide a common perspective for evaluating different technologies competing for limited system resources
- Provide a common forum for Commissions, utilities and developers to examine the location and timing of new generation/transmission projects and public benefits of these resources



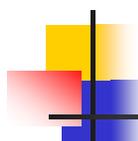
IAP Scenarios

	2006	2010T	2010X	2020
Peak California Load, MW	58,900	62,600	62,600	74,300
Peak CalISO Load, MW	48,900	51,900	51,900	61,200
Total Geothermal, MW	2,400	4,100	3,700	5,100
Total Biomass, MW	760	1,200	1,000	2,000
Total Solar, MW	330	1,900	2,600	6,000
Total Wind, MW	2,100	7,500	12,500	12,700



Project Core Analysis Team

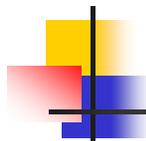
Analysis Team	Company	Activity
Kevin Porter	Exeter Associates	Team Lead; World-wide Experience
Bill Erdman; Kevin Jackson	BEW Engineering; Dynamic Designs	Wind Turbine Technology
DPC Team	Davis Power Consultants; PowerWorld Corporation; Anthony Engineering	Transmission Planning, Power Flow Analysis
GE Team	GE Energy; AWS Truewind; Rumla Inc.	Production Cost Analysis, Statistical Analysis, Wind Forecast and Data
Henry Shiu, Case van Dam, Michael Milligan, Brendan Kirby	California Wind Energy Collaborative (UC Davis); NREL; Oak Ridge National Lab	Data Support, Technology Characteristics, Integration Costs

Acknowledgments

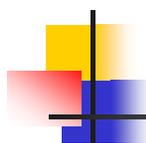
- Utilities
- CPUC
- Renewable energy companies and trade associations
- Tehachapi and Imperial Study Groups
- CA ISO





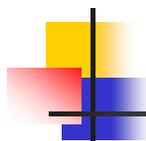
Status of IAP Project

- Impact of Past, Present & Future Wind Technologies on Transmission & Operation Report - completed and posted on Commission website
- Workshop today - present preliminary results of 2010 Accelerated Case and 2020 Case
- Report on Lessons Learned from Europe and Asia in review
- Final reports on project in preparation



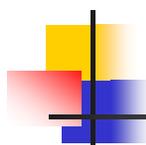
IAP Report Schedule

- Draft GE and DPC reports in early March for internal review
- Final reports will be made available on Commission website



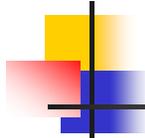
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February 13th IAP Workshop Closing Slides





Thank you

- Please provide questions & comments by February 28th, 2007
 - Send to Peter Spaulding pspauldi@energy.state.ca.us and include "IAP Comments Feb 13" in header
- All workshop materials will be posted on Commission website
- For more information:
 - Commission contact: Dora Yen-Nakafuji dyen@energy.state.ca.us
 - Project lead: Kevin Porter porter@exeterassociates.com

